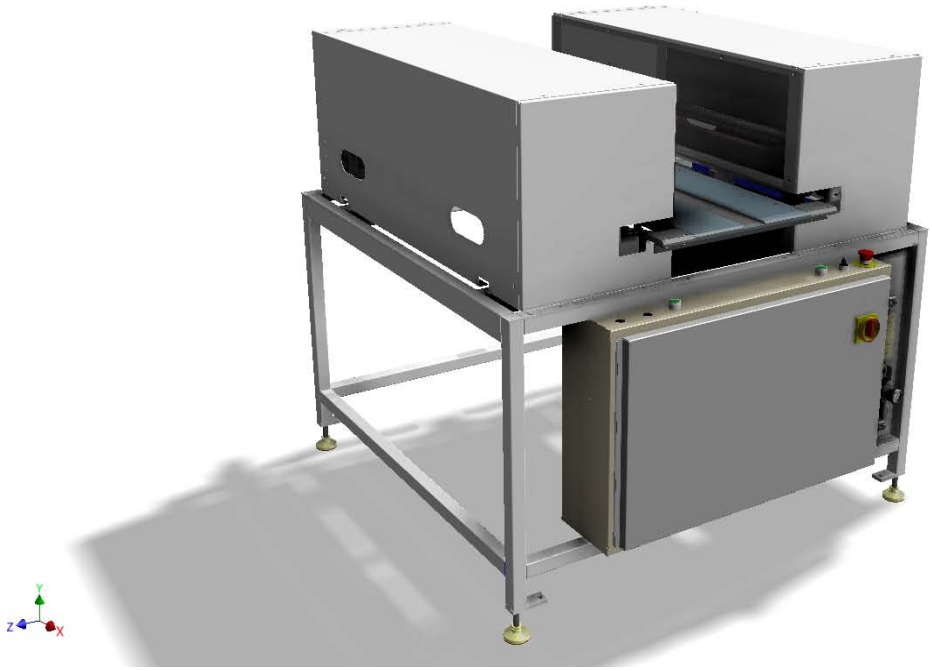
Pika ®

Family of
PUNCH BENDERs:
Pika –e (Edge)
Pika-v (Vision)
Pika-v-in (Vision – In) Line



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Oct, 2012

P/N: 0001000-0003 PIKA rev. AB

Pika®
Family of
PUNCH BENDERS

MACHINE NUMBER: _____

DATE INSTALLED: _____

INSTALLED BY:_____

For technical assistance, mechanical service, or spare parts information, please contact the Glunz & Jensen Service Department.

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Oct, 2012

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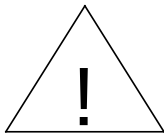
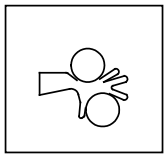
DEFINITIONS

Throughout this Manual and on the machine itself are various symbols which are explained on this page. Recognize and remember what each symbol means during installation, set-up, operation, maintenance, and machine servicing.

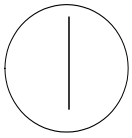


This symbol denotes important information of which all operators and service personnel should be aware.

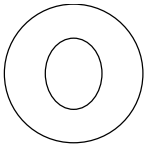
This symbol means that high voltages are present in or near the component or area in which operators or service personnel are working.



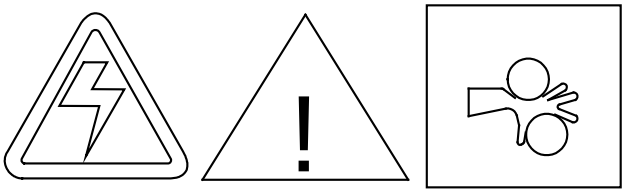
This symbol depicts an operation or area of the machine which involves or contains moving parts capable of causing bodily injury.



This symbol represents a start or power on condition.



This symbol denotes a stop or power off condition.



SAFETY INFORMATION

To ensure safety, please observe the following guidelines:

1. This machine is intended for installation and use on a nonflammable surface in a restricted area of the customer facility.

2. Do not install the PIKA unless properly trained and qualified to do so.

3. Do not operate the PIKA unless properly trained and qualified.

4. Do not repair the PIKA unless properly trained to perform such work.

5. Do not install, operate, or service the PIKA with hair that is too long or while wearing loose clothing or jewelry.

6. Do not attempt to service the PIKA unless you are a qualified electrical technician trained to perform work on this equipment.

7. Do not operate the PIKA without the protective Plexiglas® covers in place and secure.

8. Do not remove the covers or repair the PIKA unless properly trained to perform such work.

9. If any machine panels are opened or removed for maintenance or repair purposes, they must be replaced prior to powering up or operating the machine.

10. The inner workings of the machine are covered with protective panels to prevent an operator or any other personnel from introducing a limb into the machine while in operation. Moving parts within the machine may cause severe physical injury. It is therefore imperative to:

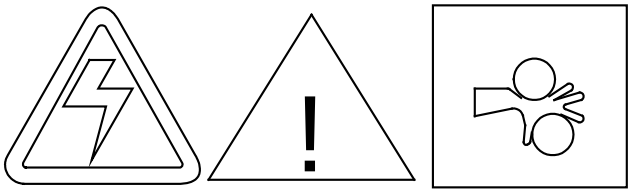
- keep all machine covers and panels in their original place and condition;
- keep all machine access doors fully closed;
- do not attempt to by-pass any of the specially designed safety features.

SAFETY INFORMATION (continued)

11. An Emergency Stop (E-STOP) button is located on the machine. If a plate fails to transfer through the machine at any time during operation, first press the Emergency Stop (E-STOP) button before attempting to correct the situation.

12. Do not leave the electrical enclosure open with the Master Power Switch bypassed. Doing so enables voltages inside the electrical enclosure which can cause injury or death.

13. Use only the correct size plates inside the PIKA.



WARNING SUMMARY

Anyone operating or servicing this machine should read and understand all Warnings and Cautions. Failure to follow these Warnings may result in injury to personnel and/or damage to the equipment.

1. Hazardous voltages are present in this machine. Serious injury can result from improper handling or usage. Read and follow all Warnings and Cautions in this Manual and on the machine itself. Never attempt electrical service on the equipment unless you are a qualified electrical technician trained to work on this equipment. Always shut off power at the disconnect device before making electrical connections or servicing electrical components.

2. Never make electrical connections to the equipment unless you are a qualified electrical technician trained to work on this equipment.

3. Perform all needed repairs, service, or routine maintenance only after first reviewing and performing your facility Lock-Out / Tag-Out Program.

4. Make sure electrical power has been removed from the power box before connecting machine wiring to it.

5. Never operate the equipment until it is reliably electrically grounded; not through the water system.

6. Never touch supply voltages; they can be lethal.

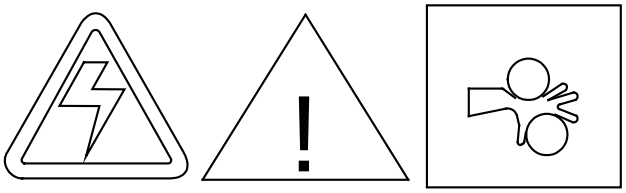
7. Always replace fuses with those of the same type and rating.

8. Always wire the power supply through a nearby disconnect device.

9. Always use care when opening the shipping carton. Strapping bands can snap causing serious injury to personnel.

10. Never move the machine without enough help and/or lifting tools capable of lifting machine weight (approximately 1,500 pounds or 680 kg).

11. During servicing or maintenance of PIKA units, it is necessary to hold each bend leaf in place using either a C-Clamp or bracket installed over the bend leaf and the hold-down bar behind it to secure it in place. Refer to the Section of this Manual regarding “Servicing the Machine”. Position the clamp or bracket over the bend leaf and hold-down bar as shown. Perform this procedure on both sides of the machine.



MACHINE INSTALLATION

Machines are shipped on a skid or crated. The machine is fastened to the skid with ½-13 threaded rod and Hex Nuts. All exposed metal is coated with a thin layer of rust inhibitor.

The following is a guide for installation. FOR BEST RESULTS, READ THE ENTIRE PROCEDURE PRIOR TO PERFORMING INSTALLATION.

NOTE

This machine is intended for installation and use on a nonflammable surface in a restricted area of the customer facility.

NOTE

Do not perform machine installation unless properly trained and qualified.

1. Carefully remove the crate from around the machine.

WARNING

Always use care when opening the shipping carton. Strapping bands can snap causing serious injury to personnel or equipment.

2. Remove any and all hardware which holds the machine to the skid.

3. Prior to lifting the machine with a power lift, verify that the lift reaches through the machine and that the machine is balanced prior to lifting. Lift the machine off the skid and place in position.

4. Remove all banding material from inside machine. Moving parts are tied down to keep them from moving during shipping.

5. Place machine on production floor as desired. If more than one machine is being installed at this time, position all machines in their approximate location on the floor with regard to each other.

6. Adjust the 4 leveling feet so that the machine is level.

PIKA Overview

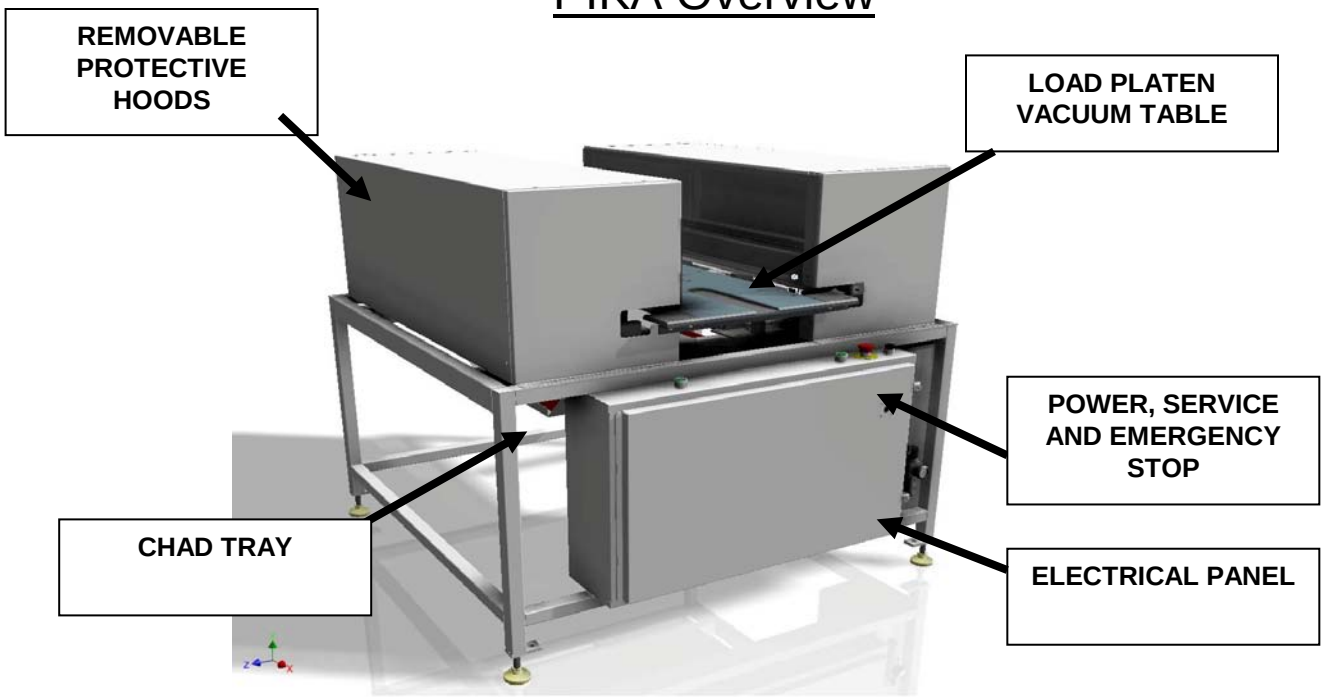


Figure 1. **PIKA-e shown**

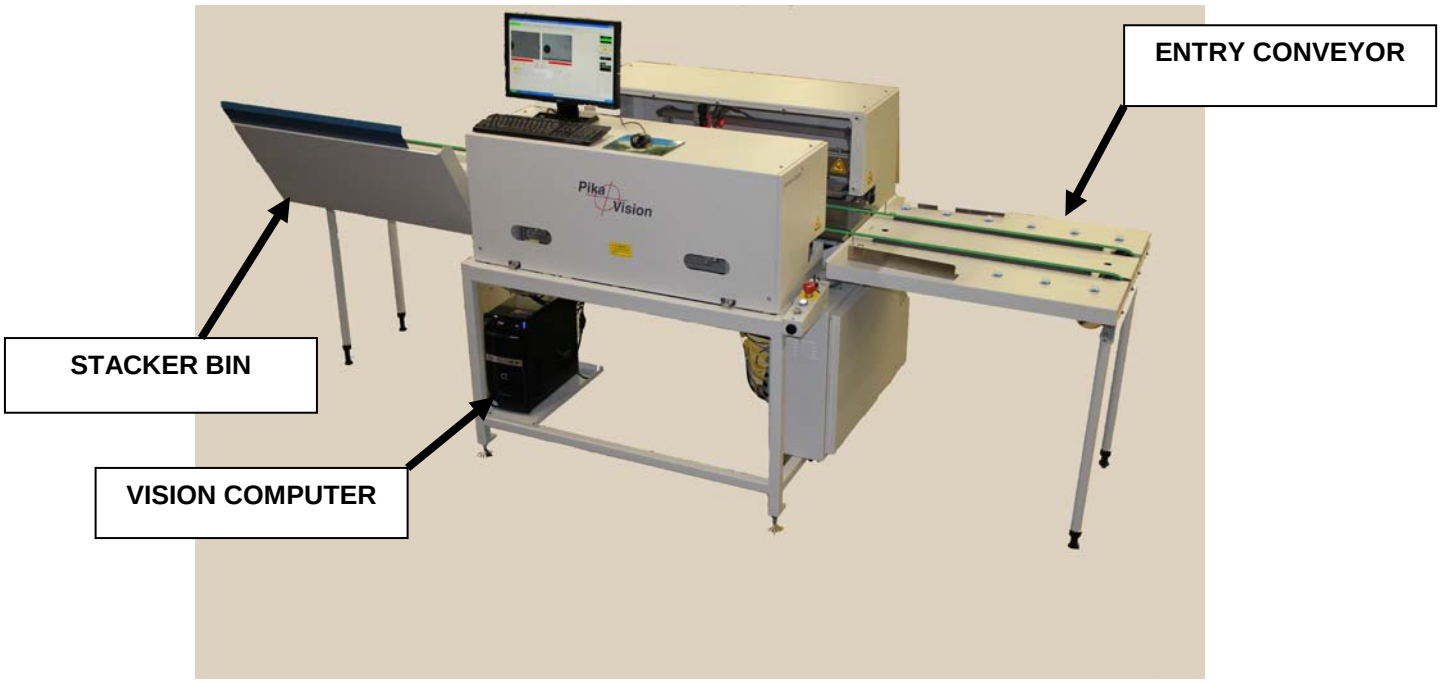
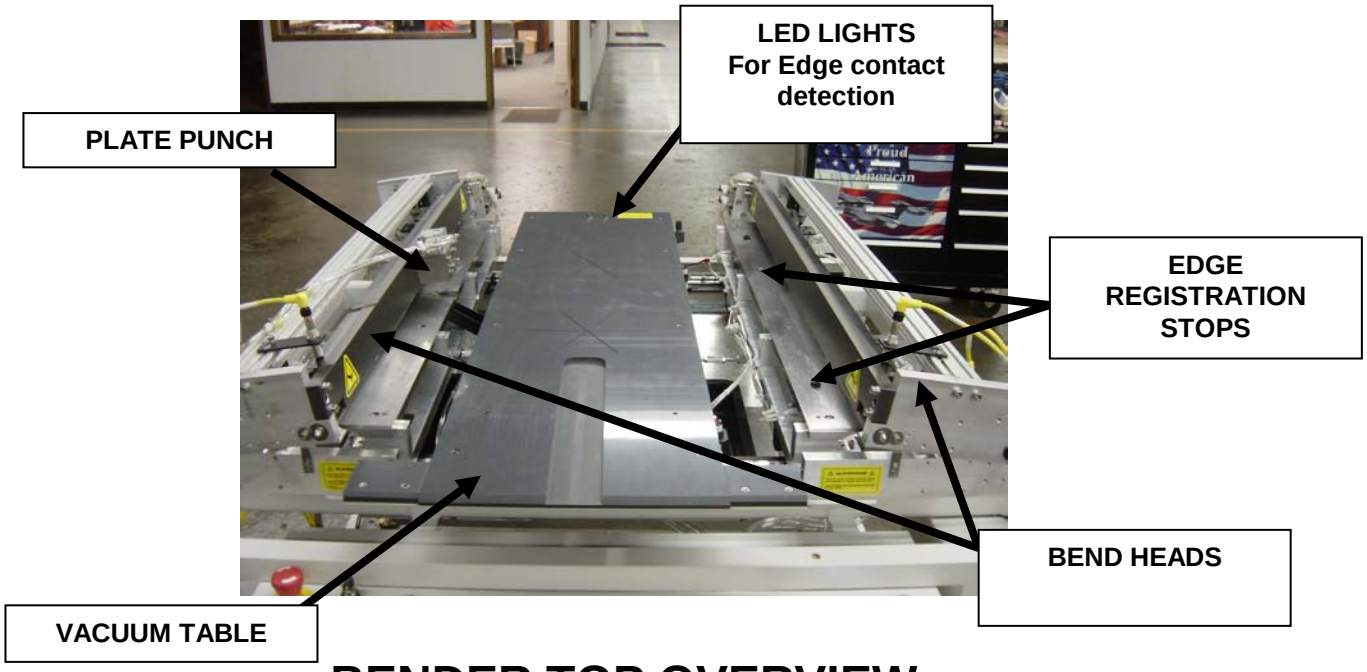


Figure 1a. **PIKA-v-il shown**



BENDER TOP OVERVIEW
FIGURE 2.

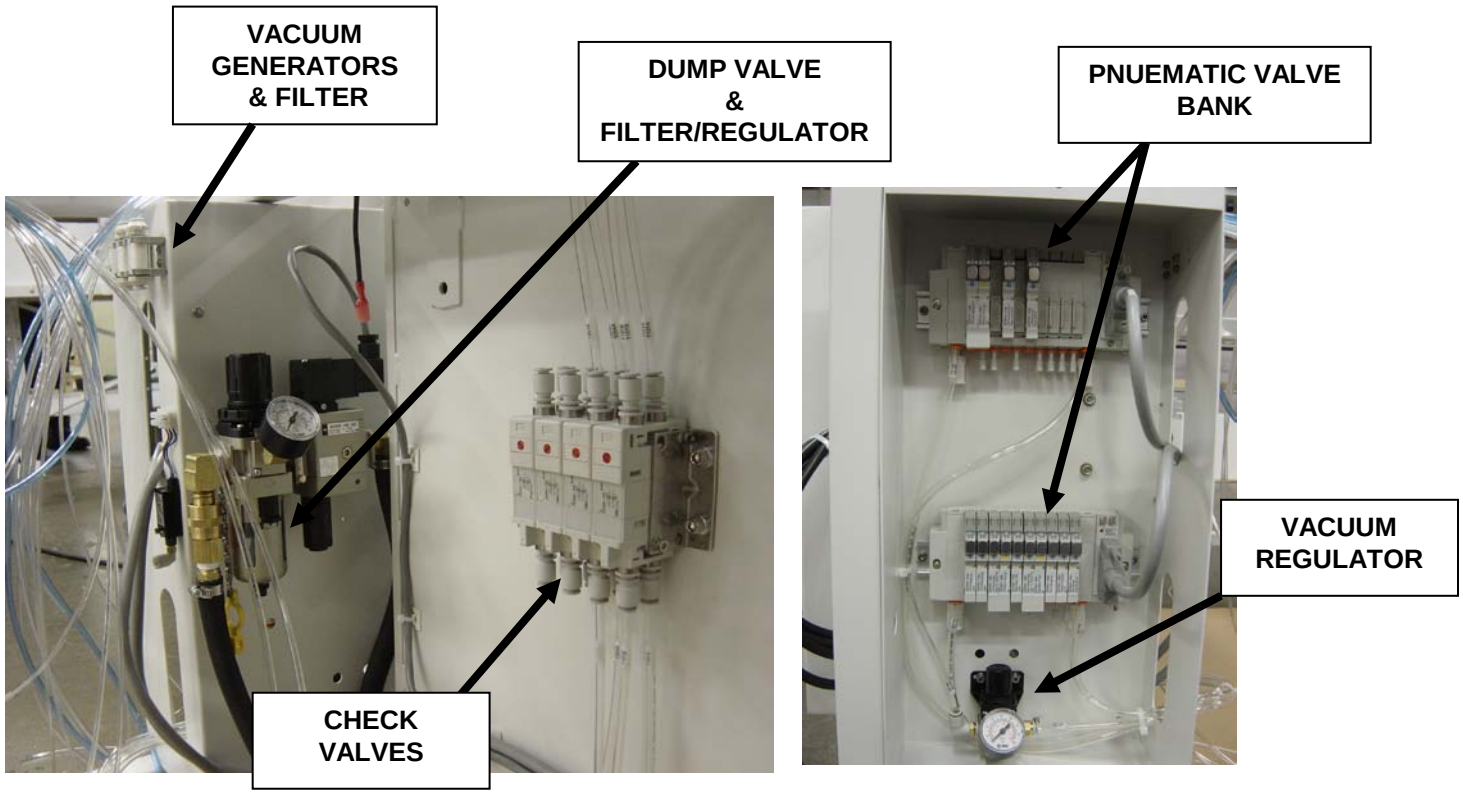


FIGURE 3. PNEUMATIC PANEL

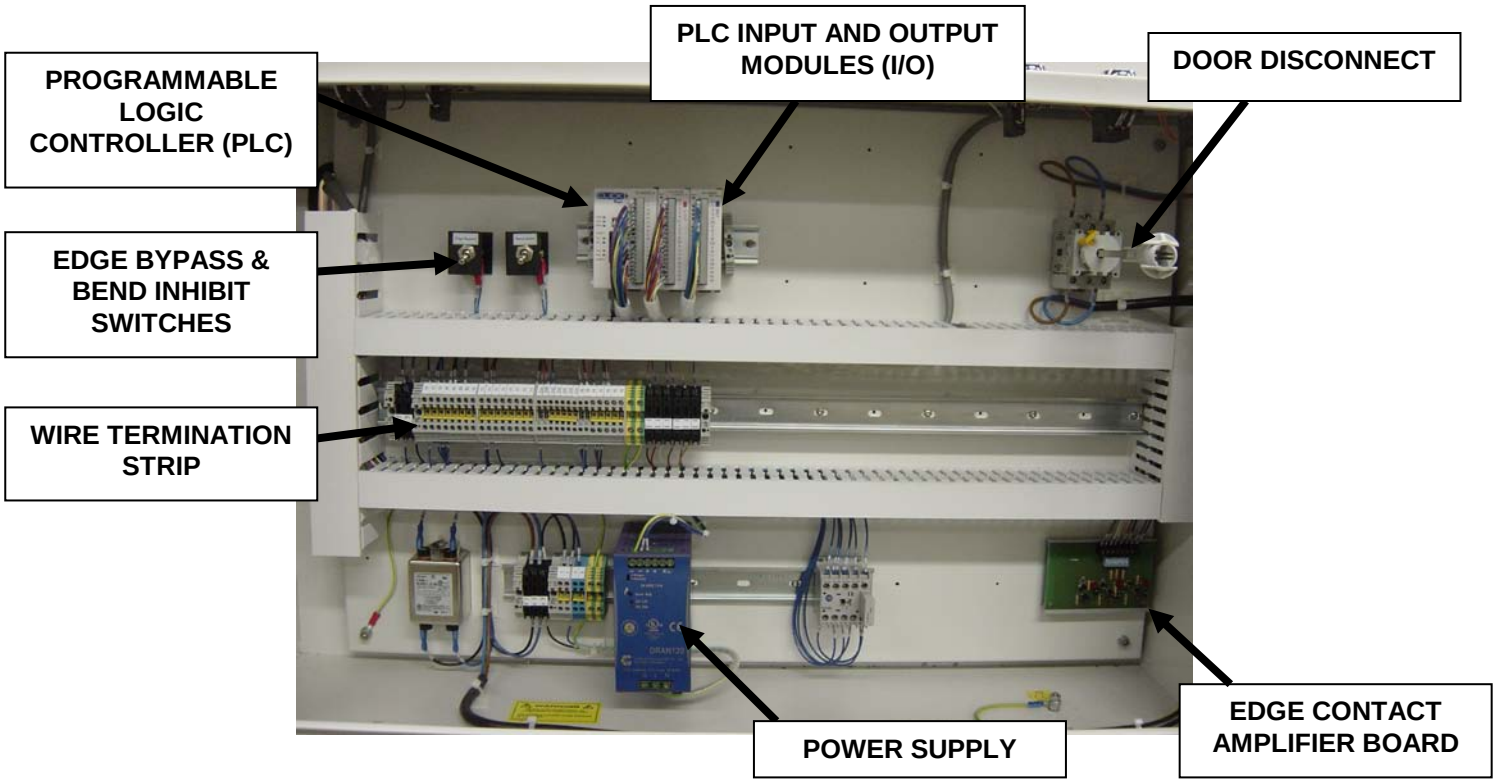


Figure 4. ELECTRICAL PANEL

CONNECTING FACILITY AIR AND ELECTRIC POWER

Once machines are uncrated and set in place, and after spacer brackets are installed as applicable, complete installation by connecting facility air and electrical power.

1. Connect the house air supply to the filter/regulator assembly located opposite the plate feed side of the machine, to the left of the electrical box. See Figure 1.

NOTE

The PIKA requires a 1/2-inch I.D (12.7mm). (3/8 NPT) (9.52mm) barb to complete connection.

NOTE

The regulator is set for “0” pressure and should not be adjusted upward until the machine is connected to the facility air supply.

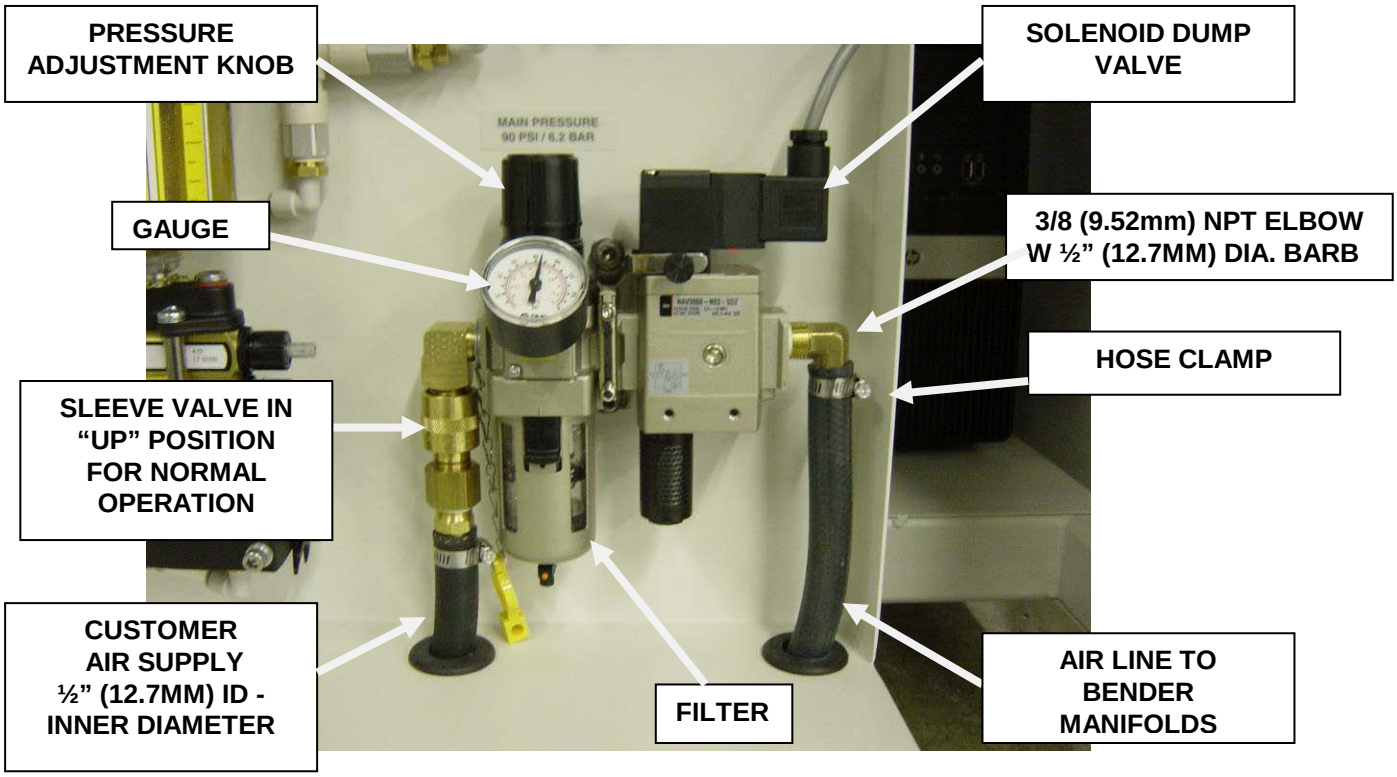


Figure 5. PNEUMATIC CONNECTION.

CONNECTING FACILITY AIR AND ELECTRIC POWER
(continued)

2. Once the machine is connected to the facility air supply, move the Sleeve Valve in front of the regulator to the up position so that air can flow to the regulator. See Figure 6.

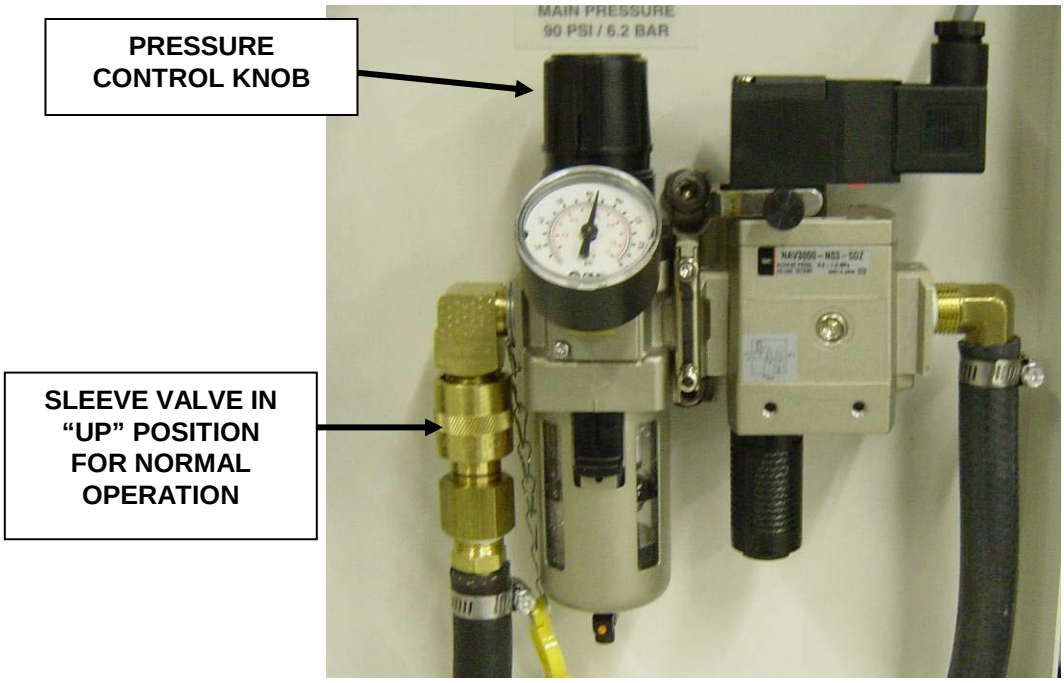


Figure 6. MOVING THE SLEEVE VALVE TO THE UP POSITION.

3. After the Sleeve Valve is in the up position, pull upward on the black control knob and adjust the regulator air pressure slowly up to 90PSI / 6.2 BAR by rotating the black control knob on top of the regulator.

4. Once the regulator is set, push the black knob downward to lock the pressure setting.

4. After facility air power has been connected to the machine and set, connect the facility electric power.

CONNECTING FACILITY AIR AND ELECTRIC POWER
(continued)

5. Connect the electrical power to the Disconnect inside the electrical box. See Figure 7. Electrical hook-up must include an equipment ground and must comply with local electrical codes. Hook up the ground wire as marked on the PE label, next to the 6 mm grounding stud. These connections should be done by a qualified electrician. Use the electrical schematic included with this manual as a reference for wiring.

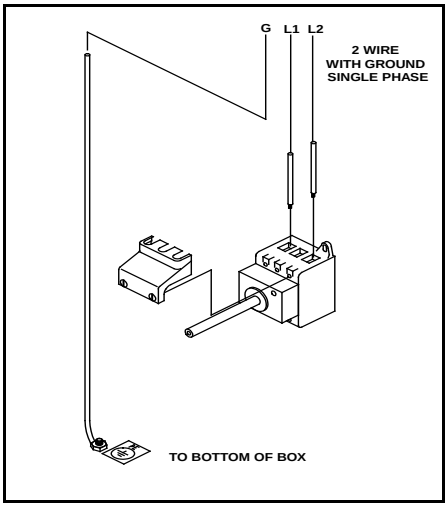


Figure 7. ELECTRICAL AND GROUND HOOK-UP.

6. If the bender is a PIKA-inline, complete machine installation by connecting the two corresponding ends of the black electrical connectors between the PIKA and the machine upstream.
The connector from the bender is labeled “ENTRANCE COMM”.
The connector from the UTM may by labeled “STRAIGHT COMM”, “Left COMM”, or “Right COMM”

7. Complete machine installation by connecting the two corresponding ends of the black electrical connectors between the PIKA and the machine.

8. Prior to energizing machine, have the door disconnect off and the Emergency Stop (E-STOP) buttons pushed in. Then:

- **a.** Energize the door disconnect;
- **b.** Twist and pull the red Emergency Stop (E-STOP) buttons out; and
- **c.** Press the POWER ON button.

INTRODUCTION

The PIKA family includes the following:

- PIKA-e is a stand-alone hand-fed Edge Punch Bender
- PIKA-v is a stand-alone hand-fed Vision Punch Bender
- PIKA-V-IN is an automated in-line Vision Punch Bender which comes standard with an attached in-feed conveyor and a stacker.
  The PIKA-V-IN can be placed in-line behind a plate processor.

The PIKA is designed such that it can be upgraded to Vision and/or in-line system in the field.

The PIKA uses a notch punch system, custom-fitted to match the customer's existing plate registers. The PIKA utilizes a rotary leaf bending motion over a hardened forming mandrel to bend the plates.

PIKA-v & PIKA-V-IN (only)

VISION REGISTRATION SYSTEM

The Vision Registration System, located in series with the bend heads, accurately and consistently locates and registers a plate prior to bending. A warning system is incorporated to alert the operator if a plate is not registered accurately because no registration mark was detected. The bender will reject the plate undamaged. If the Vision Registration System should ever fail, an edge registration back-up is also available.

The Vision Registration System recognizes the registration marks, and then calculates the amount of movement necessary to correct the plate and signal indexers to bring the plate into proper position and registration. Features of the Vision Registration System are listed below.

- Registration table moves the plate accurately.
- A vacuum table holds the plate in place during operation.
- Indexers drive the Registration table motors.

EDGE REGISTRATION BACK-UP

Edge stops are located precisely in conjunction with the edge stops used in the PIKA to pre-register the plate for vision registration. In the event the Vision System is down or when running blank (dummy) plates, the PIKA can be switched to EDGE mode.

PROPER POWER UP AND POWER DOWN ROUTINE

When restoring power to the PIKA, start with the E-STOP button pressed or engaged. (Refer to Figure 9).

Turn the Main Disconnect Switch to the ON position to apply power to the electrical cabinet and the benders' Personal Computer (PC) when bender is equipped with a Vision system. (Refer to Figure 8).

CAUTION

When restoring power to or removing power from the PIKA, it is important to use the proper procedure. Powering down incorrectly or failure to wait at least 45 seconds before powering back on may result damage to the PC hard drive and/or PLC components.

Figure 8. MAIN DISCONNECT SWITCH ON THE ELECTRICAL ENCLOSURE

The usual process to shut down the PIKA is to press the E-STOP button to remove control power from the PIKA. The PC should be shut down in the usual manner for any Windows®-based PC. Once the PC has completed its shutdown routine, the Main Disconnect Switch may be turned to the OFF position. Again,

Remember that the power should remain off for at least 45 seconds before turning the PIKA back on.

PROPER POWER UP AND POWER DOWN ROUTINE
(continued)

NOTE

Do not operate the PIKA unless properly trained and qualified to do so.

NOTE

Do not operate the PIKA without the protective Plexiglas® covers in place and secure.

CAUTION

Do not operate the PIKA with hair that is too long or while wearing loose clothing or jewelry.

OPERATOR CONTROLS

PIKA-e & v

EMERGENCY STOP (E-STOP)	RUN/SERVICE SWITCH	LEFT CYCLE START BUTTON

Figure 9a. (LEFT SIDE).

RIGHT CYCLE START BUTTON	POWER ON BUTTON	POWER OFF BUTTON

Figure 9b. (RIGHT SIDE).

OPERATOR CONTROLS

PIKA-v-in (Inline bender)

POWER OFF BUTTON	POWER ON BUTTON	EMERGENCY STOP (E-STOP)	RUN/SERVICE SWITCH

Operator Control Panel buttons and switches are explained on the following page as they appear from left to right.

PIKA-e & PIKA-v

OPERATOR CONTROLS (continued)

EMERGENCY STOP (E-STOP) BUTTON

This switch automatically and instantly disables the machine. To disengage the E-STOP following activation, rotate the red knob clockwise, and then release.

RUN / SERVICE

This 2-position key switch activates the RUN mode (the normal operating mode), and the SERVICE mode (which activates the dump valve). Set and leave in the RUN position unless servicing or troubleshooting the machine or oil carding the punches. Note that the key can be inserted or removed only in the SERVICE position.

LEFT CYCLE START (Pika –e or Pika-V only)

For increased safety, there are two CYCLE START buttons on the machine which work with each other and must be pressed simultaneously. These buttons initiate machine operations. **The Left Cycle Start button is used with the Edge Stop Bypass switch to activate vacuum in the event the edge stop electrical continuity system is not functioning properly. Use the button for vacuum activation only when the Edge Stop Bypass switch is active ON.**

RIGHT CYCLE START (Pika –e or Pika-V only)

For increased safety, there are two CYCLE START buttons on the machine which work with each other and must be pressed simultaneously.
These buttons initiate machine operations.

POWER ON (PUSH TO START)

This button is a momentary contact switch with a light in the button. When pushed, the light is on and the machine is powered up.

POWER OFF

This button is used to remove power from the machine. This button is not illuminated at any time.

OPTIONAL CONTROL
Some benders may be equipped with a selector switch to choose between SW and DW plates. (Broadsheet & Panorama)

PIKA-e & PIKA-v
SEQUENCE OF Operation

To bend and punch plates on the PIKA, perform the steps below.

1. If the Emergency (E-STOP) Button is engaged, disengage it by rotating the red button in the direction of the arrow, then lift up.

2. Press the POWER ON button so it lights up.

CAUTION

Make sure to load the plate selected. Loading a plate other than the one selected may risk damage to the plate or to the machine.

3. To load a plate, carefully load the plate onto the load platen. Push the plate to the side with the edge stops, and then back until it is positioned up against the edge stops located along the back and along the side of the machine.

4. When the plate has contacted all three edge stops, the 2 LED lights labeled “EDGE STOP” located at the back of the vacuum plate will illuminate. Refer to Figure 10. The table vacuum will activate automatically.
In the event the edge stops do not function properly during the electrical continuity step of the sequence of operation, a bypass switch is provided to allow the machine to continue process plates. The edge stop bypass switch is located inside the electrical enclosure See Figure 4 and Operator Controls description for the Left Cycle Start button.

SEQUENCE OF Operation (continued)

5. With the plate held to the table by the vacuum, press both green CYCLE START buttons to initiate the punch cycle. It is not necessary to keep both CYCLE START buttons pressed.

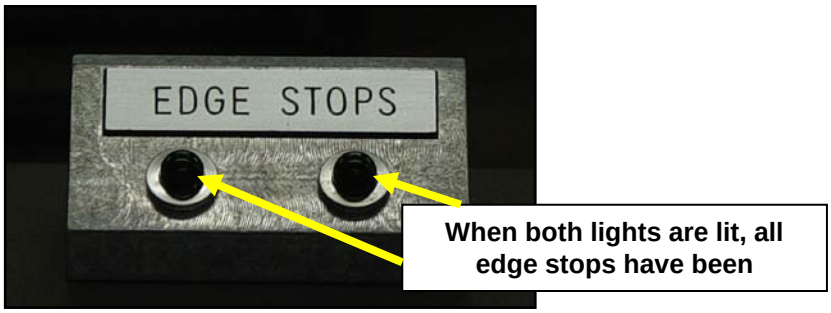


Figure 10. THE EDGE STOP LIGHTS.

Once the vacuum comes on and the plate is being held to the top plate, the edge stops will retract and stay down throughout the remainder of punch and bend operations. Once the punch cycle starts, machine operations are automatic and require no other operator action until the punched and bent plate is ready to be unloaded.

6. Once the punch/bend cycle is complete, the 2 LED lights at the back of the table will alternately illuminate. This is the signal to the operator that the plate is ready to be removed from the bender.

Be careful to minimize contact between the plate and other machine surfaces.

To punch and bend additional plates, repeat steps 3 through 5 above.

PIKA-V-IN (inline)
SEQUENCE OF OPERATION

The sequence of events during the operation of the PIKA is described below. The events described in this section are signals based on the program logic contained in the PLC.

NOTE

Bend head designations change from Lead and Trail to Left and Right as viewed from the exit side of the PIKA. This Note will be repeated at the conclusion of this section as a reminder.

1. Sensors in the machine up-line of the PIKA-V-IN sense whether a plate is singlewide or doublewide and the PLC of that up-line machine sends the appropriate signal to the PIKA PLC.

2. When the PIKA-V-IN is ready to accept a plate, the PIKA PLC sends a signal back to the machine up-line to send that plate.

3. The plate enters the PIKA-V-IN and the photo-eye sensors in the PIKA sense the presence of a plate.

4. Conveyor feeds the plate until it meets the edge stops.

5. The edge stops and pushers pre-register the plate.

.

6. If in “Edge” Register (back-up) mode:

- **6a.** The table vacuum comes on.
- **6b.** Edge stops and pushers retract.
- **6c.** The bend heads move out to the punch position.
- **6d.** The punches activate and the plate is punched after the heads go Down.
- **6e.** The punches retract and heads go up after the punch cycle.

7. If in “Vision” Register mode:

- **7a.** Edge stops and pushers retract.
- **7b.** The bend heads move out to the punch position.
- **7c.** Table vacuum comes on.
- **7d.** Vision System will register the plate in accordance with the vision targets on the plate.

SEQUENCE OF OPERATION (continued)

7e. The punches activate and the plate is punched after the heads go down.

7f. The punches retract and the heads go up after the punch cycle.

8. Bend leaves and bend heads move to the bend position then go down and form the bends with rotation of the bend leaves.

9. The Bend Heads go back to their fully up position. The bend heads may repeat bend steps if a pre-bend is required on either side or both.

10. The Bend Heads move to their Home position.

11. Bender table vacuum off.

12. Conveyor activates and the Plate exits the PIKA and is delivered to the stacker.

ELECTRICAL SYSTEM

For operations, troubleshooting, maintenance, and repair information regarding the PIKA Electrical System, refer to Customer Service.

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PNEUMATIC SYSTEM

For operations, troubleshooting, maintenance, and repair information regarding the PIKA Pneumatic System, refer to Customer Service.

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PNEUMATIC SYSTEM COMPONENTS

The following information addresses the pneumatic system and related components on Glunz & Jensen equipment. Because it covers all typical pneumatic configurations used by Glunz & Jensen, make sure to locate, read, and follow those section(s) pertaining to your particular machine, part number(s), or equipment. Check the Parts List in your Manual to verify part numbers and applicability to your particular equipment and system set up.

This machine is primarily pneumatically powered. It contains pneumatic operated air cylinders, controlled by electrical solenoid valves.

LUBRICATION

All pneumatic components are pre-lubricated. No further lubrication is needed.

The recommended lubricant is turbine oil #1 (ISO VG32). Never use spindle oil or machine oil.

MAINTENANCE

Excessive carbon powder and oil waste from the air source (mostly from the compressor) entering the pneumatic system can result in increased spool seal resistance, causing valve malfunction. In the worst case, the spool can adhere to the valve. It is important to check the air quality often. If the valve is left under pressurization for a long time with inferior air quality, carbon powder and oil waste in the compressed air can deposit and build up in the clearance between the spool and sleeve, causing the spool to adhere to the valve. To remedy this condition, check the compressor oil and use the appropriate least oxidizing compressor oil. A high filtration mist separator installed behind a regulator filter can prevent foreign particles from entering the valve.

If waste from the air source adheres to the spool and sleeve, disassemble the adapter plate area and end plate area (return spring insert area), remove the spool and sleeve from the valve, and clean them with trichlorane or freon solution. When cleaning, prevent o-rings from contacting cleaning solutions. Be sure to keep each spool and sleeve assembly together as a pair.

When disassembling and re-assembling, ensure that all components are in their proper positions. Prevent gaskets from slipping and tighten bolts equally.

FILTER / REGULATOR ASSEMBLY

The information below addresses the Filter / Regulator Assembly which is the main regulator of the machine. See Figure 11. The plumbing arrangement for your particular machine can be found on the Pneumatic System Schematic Diagram included in the Manual.

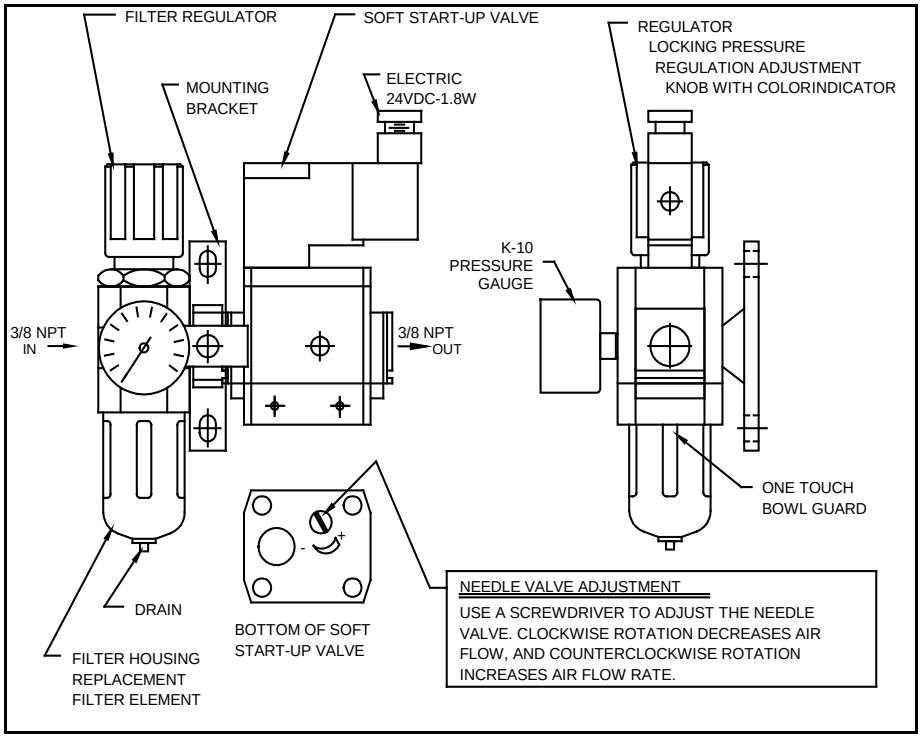


Figure 11. FILTER / REGULATOR.

FILTER

De-pressurize before removing guard and bowl. Remove rigid (felt) filter element. Clean periodically by tapping on surface and blowing off with air gun. Replace filter if necessary. The replacement filter element part number for PP0001 is PP0021.

REGULATOR

Turning the adjustment knob clockwise increases air pressure. Turning the knob counterclockwise reduces air pressure. After adjusting, push the knob back into the locked position to prevent accidental setting changes. Refer to the Pneumatic Schematic for the proper pressure setting.

NOTE

The three-way Sleeve Valve (Part Number PV0198) needs to be in the up position to allow air flow to the regulator and the machine. Refer to the Lock-Out / Tag-Out Procedure in this Manual

PNEUMATIC FLOW CONTROLS

Most air cylinders on the equipment have flow controls to adjust the speed of the cylinder. See Figure 12. Each flow control valve regulates 1 of the 2 movements of the cylinder.

Flow controls with silver rings control the air flow as it exits the cylinder. Flow controls with black rings control the air as it enters the cylinder. This must be taken into consideration to know which flow control to adjust in order to speed up or slow down the cylinder.

Several styles of flow control valves are used. The exact type selected is customer-dependent. Several examples of flow control valves and the adjustment procedure are shown below.

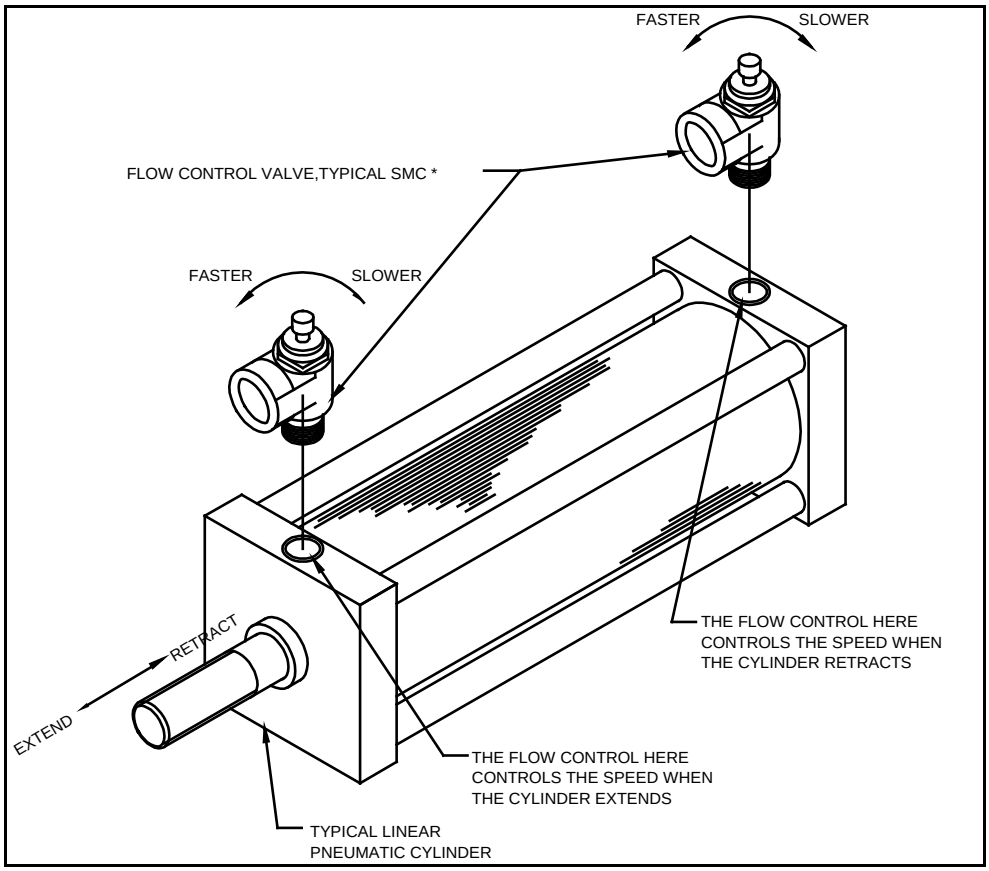


Figure 12. PNEUMATIC FLOW CONTROLS.

VISION REGISTRATION SYSTEM
PIKA-V & PIKA-V-IN only

For information regarding the Vision Registration System used in the PIKA, refer to the ProVision V6.0 YJX System Manual.

PREVENTIVE MAINTENANCE

The PIKA-v & Pika-v-IN are equipped with a Maintenance alert system on the computer that will alert the operator when general maintenance is required. Intervals between various service routines can be determined by the customer but should not exceed factory recommendations.

Weekly

1. Check air pressure settings.
   Main pressure regulator should read 90 psi (6.2 BAR).

2. Wipe bend mandrels clean using a mild detergent.

   NOTE: Gum from the processor will build up on the Bending mandrels. This can cause the plates not to travel correctly through the Bender.

3. Bend test plates in the Automatic mode and check plates for proper fit to the press cylinder. If they do not fit properly, call Service to make proper adjustments prior to production.

4. Check Register vacuum filters. Replace as required.

5. Check punches for adequate amount of oil to prevent galling. Punches should be oiled every 1500-3000 cycles or as required.

To oil the punches:

1. Remove glass panel.
2. Apply oil to the small filler located either in front or on the side of the punch housing.
3. If a filler port is not provided, remove the set screw and fill oil through the set screw hole.

Do not over oil as the oil will get onto the plate. Add 4-5 drops of AW 32 Hydraulic Oil as needed into the reservoir on the punch housing.

MONTHLY

1. Check the filter/regulator filter element. It should be changed once a year or when a pressure drop of 15 psi (1 BAR) is reached across the filter.

   See the spare parts list at the end of this manual for the proper replacement filter element.

2. Check for and remove any water accumulated in the filter jar. See the Pneumatic System Components section of this Manual for instructions.
3. Check conveyor belts for wear and slippage.

TROUBLESHOOTING

Refer to the list below for typical operational problems or conditions on the PIKA. Refer also to the Electrical and Pneumatic System Schematic Diagrams included with this Manual for specific input and output addresses.

A. PIKA Bender will not power up.

1. Check Main Power supply to equipment.
2. Check that Main Disconnect is turned ON.
3. Check line fuses inside Electrical Compartment.
4. MCR enabled.

B. Bend cycle does not start when in Vision mode.

1. Plate at bender input should be lit.
   - **a.** singlewide at bender for singlewide plates.
   - **b.** singlewide and doublewide for doublewide plates.
2. Bend leaf “up” sensors should be lit and PLC input lit.
3. Register vacuum valve lit.
4. Vacuum sensor is lit and PLC input lit.

C. Bend cycle does not start when in Edge mode.

1. Plate at bender input should be lit.
   - **a.** singlewide at bender for singlewide plates.
   - **b.** singlewide and doublewide for doublewide plates.
2. MCR enabled.
3. Bend leaf “up” sensors should be lit and PLC input lit.
4. Register vacuum valve lit.
5. Vacuum sensor is lit and PLC input lit.
6. Three PLC inputs from edge register contacts should be lit.

D. Bend leafs do not activate.

1. Bend head down sensor should be lit and PLC input lit.
2. PLC output for Bend Leafs Down should be lit; verify red LED on valve is lit.

TROUBLESHOOTING (continued)

E. Punches do not operate.

1. Plate At Bender input should be lit.
   a. singlewide at bender for singlewide plates.
   b. singlewide and doublewide for doublewide plates.
2. Vacuum sensor is lit and PLC input lit.
3. Registration complete signal should be lit.
4. PLC output for Punches Go Down should be lit, verify red LED on valve is lit.

F. Vision System does not execute registration cycle.

1. Plate At Bender input should be lit.
   a. singlewide at bender for singlewide plates.
   b. singlewide and doublewide for doublewide plates.
2. Vacuum sensor is lit and PLC input is lit.
3. Verify that Register tables are at "HOME" and PLC input is lit.
4. Start Registration output, PLC will read on.

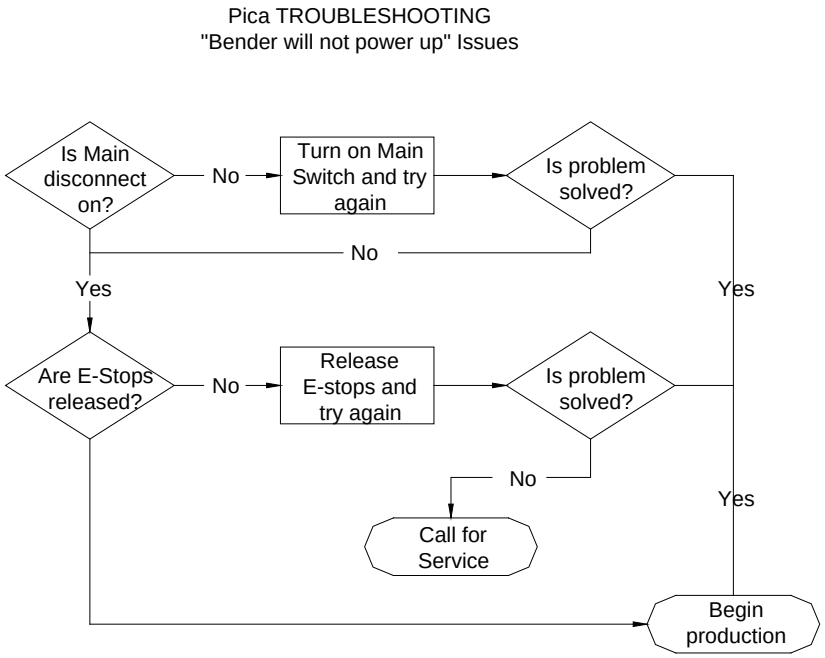
G. Vision System display reads AXIS ERROR in the Y-, J-, or X-axis.

1. Press E-STOP. Disengage E-STOP and start machine back up. Allow Vision System to re-initialize.
2. Check that green LED is lit on stepper drives for each axis.
3. Check the wire connection at stepper motors on each Y-, J-, & X-Axis.

H. Machine stops advancing plates to the registration area.

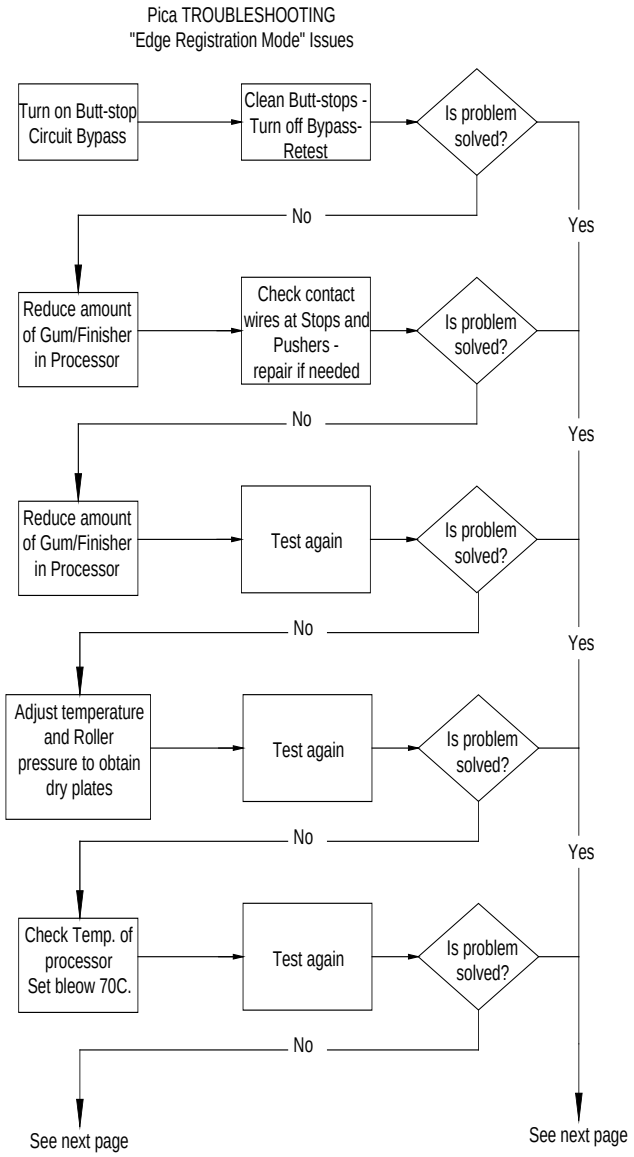
1. Plate At Register must be OFF.
2. All register tables must be at "HOME."
3. "AUTO RUN" when on must be "ON."
4. Obstruction on Stacker.
5. Stacker arm is down and sensor is lit and the PLC is lit.
6. Bend Leaf “up” sensors are lit and the PLC is lit.
7. Clear for plate PLC output is lit.
8. Lost communications between Conveyor and PIKA.

TROUBLESHOOTING (continued)



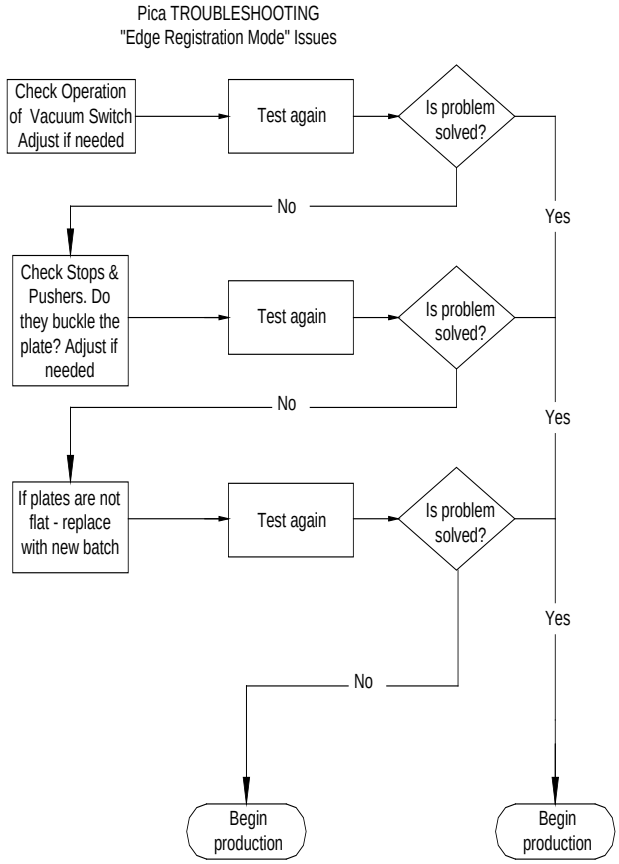
TROUBLESHOOTING FLOWCHART (Page 1 of 3)**.**

TROUBLESHOOTING (continued)

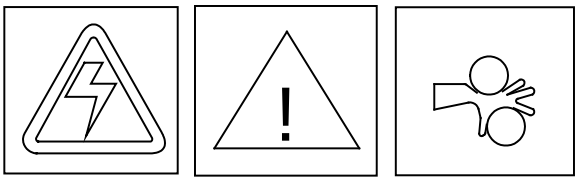


TROUBLESHOOTING FLOWCHART (Page 2 of 3)**.**

TROUBLESHOOTING (continued)



TROUBLESHOOTING FLOWCHART (Page 3 of 3)**.**



SERVICING THE MACHINE

NOTE

Do not service or repair the PIKA unless properly trained and qualified.

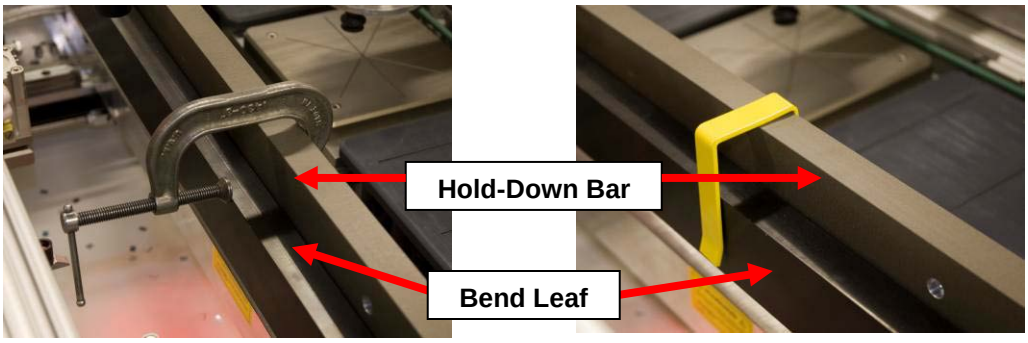
The procedures in this Section are to be performed only by Service personnel trained to work on this equipment. Prior to performing any of these procedures, review all Warning labels on the machine itself, as well as all Warnings, Cautions, and Notes found in this Manual. Be sure, additionally, to heed all such labels and markings while performing these procedures.

Prior to beginning any Service work, review the Safety Information and Warning Summary on pages 6 through 8 of this Manual. It is recommended to read any Service procedure in its entirety before starting to perform any Service work on the machine.

Immediately following on the next few pages is the Lock-Out / Tag-Out Procedure. This procedure is to be performed prior to starting maintenance or service work on the PIKA machine. It is designed to be a deliberately redundant means of protecting the safety of all service and operations personnel in the immediate area of the machine.

WARNING

During servicing or maintenance of PIKA units, it is necessary to hold each bend leaf in place using either a C-Clamp or bracket installed over the bend leaf and the hold-down bar behind it to secure it in place. Refer to the photograph below and position the clamp or bracket over both the bend leaf and hold-down bar as shown. Perform this procedure on both sides of the machine.



C-CLAMP CONNECTING BEND LEAF TO HOLD-DOWN BAR.	BRACKET CONNECTING BEND LEAF TO HOLD-DOWN BAR.

Figure 13.

LOCK-OUT / TAG-OUT PROCEDURE

Following is the Lock-Out / Tag-Out Procedure. Perform this procedure prior to starting maintenance or service work on the PIKA machine. It is designed to be a deliberately redundant means of protecting the safety of all service and operations personnel in the immediate area of the machine.

1. Make sure machine is not currently in a bend cycle.

2. Press the EMERGENCY STOP (E-STOP) button to remove power from the machine. See Figure 14. The POWER ON push button light will go out.

Figure 14. EMERGENCY STOP (E-STOP) BUTTON.

3. Move the Main Power Switch to the OFF position. See Figures 14 and 15 below for the type of switch used on your machine.

Figure 15. MAIN POWER SWITCH IN THE OFF POSITION.

LOCK-OUT / TAG-OUT PROCEDURE (continued)

4. With the Main Power Switch in the OFF position, it is now time to lock the Switch. On the Type A Main Power Switch, insert a keyed lock (padlock) into at least one of the three holes provided for that purpose located around the edge of the Switch. After securing the lock, remove and retain the key. On the Type B Main Power Switch, pull out the built-in red inner locking mechanism, then insert a keyed lock (padlock) into the hole to lock and secure the Switch. See Figure 16. After securing the lock, remove and retain the key.

Figure 16. MAIN POWER SWITCH IN THE LOCKED POSITION.

LOCK-OUT / TAG-OUT PROCEDURE (continued)

5. If performing a “Remove and Replace” type of repair during which machine air power is to be shut off, leave the RUN / SERVICE switch in the RUN position. If performing machine adjustments or a related type of maintenance where machine air power is to remain on, then move the RUN / SERVICE switch to the SERVICE position.

6. To completely remove air from the machine, including the filter/regulator assembly itself, move the safety ring on the Sleeve Valve in front of the filter/regulator assembly to the down position. Next, place the attached yellow lock-out ring around the shaft of the Sleeve Valve where the safety ring had been, then insert a padlock into the holes at the ends of the yellow retaining ring. See Figure 17.

Figure 17. SLEEVE VALVE IN DOWN POSITION AND LOCKED.

LOCK-OUT / TAG-OUT PROCEDURE (continued)

7. At this time, place whatever standard tag or marker is used at your facility on top of the machine so that any personnel in the area can see immediately and without having to ask anyone that the machine is out of service and is not to be operated.

8. Once the E-STOP has been pressed, the Main Power Switch is OFF and locked, the Sleeve Valve has been disabled and locked, and the machine is positively identified as being in service, desired service work may now be safely performed.

9. At the conclusion of machine servicing, perform the steps below to clear the Lock-Out / Tag-Out condition and return the machine to operation.

10. Remove the lock from the yellow lock-out ring and move the safety ring back to the up position.

11. If it was moved to the SERVICE position, make sure that the RUN / SERVICE switch is placed back in the RUN position.

12. For the Type A Main Power Switch, remove the lock or locks from the Switch. For the Type B Main Power Switch, press the built-in locking mechanism back in to the body of the Switch.

13. Disengage the red EMERGENCY STOP (E-STOP) button by rotating it in the direction of the arrow on top. The button will automatically pop back out.

14. When the machine is to be returned to operation, press the Power On button so that it lights up. Once the light inside the Power On switch lights up, the machine can be operated.

REPLACING THE PHOTO EYE SENSORS

To replace any of the photo eye sensors (Part Number ES0111), perform the steps below. Refer to the Electrical System Schematic Diagram that accompanies this Manual and Figure 18.

Figure 18.

1. Make sure machine is shut down in accordance with the Lock-Out / Tag-Out Procedure in this Manual.

2. Make sure machine electrical power is off.

3. Make sure machine pneumatic system is shut down.

4. Positively identify the sensor or sensors to be replaced. Note the sensor height and location before it removal. Gain access to the sensor screws or attaching hardware and the applicable terminal blocks by opening machine doors or removing the side panels, as necessary. Retain all mounting hardware for re-installation.

5. Unscrew the sensor wires at the terminal block, or remove quick disconnect cable.

6. Remove and retain the retainer nuts from the sensor to be replaced. Remove sensor.

7. Position new sensor and align with mounting holes.

8. Install new sensor, using attaching hardware removed in step 5 above.

9. Connect the sensor wires to the same locations in the terminal block to which the old sensor had been wired, matching colors (i.e., brown to brown, black to black, and blue to blue). Or, reconnect quick disconnect cable.

NOTE

Prior to completion of work and before closing doors or reassembling machine, verify sensor distance (positioning) by placing plate and film in machine to see whether the new sensor is tripped. If not, the sensor is too far from the plate or film.

10. Close machine doors or re-install any machine panels removed in step 4 above, using the same mounting hardware removed in step 4 above.

CHANGING THE BEND HEAD ANGLES

If it becomes necessary to change the bend leaf settings on an air-actuated machine in order to change the angles of the plate bends, perform the steps below.

SETTING THE PRIMARY BEND ANGLE

Perform this procedure on the right and left bend leaves, as appropriate, in order to produce Plate Print specifications.

1. Shut off machine in accordance with the Lock-Out / Tag-Out Procedure found at the beginning of this Section of the Manual. Place the keyed selector switch in SERVICE Mode so valves may be manually activated.

2. With machine in SERVICE Mode, locate and activate appropriate valve to move the bend head to the down position.

3. Before proceeding, use a pencil to scribe a line across all three rings to assist in re-assembly at the end of this procedure.

4. Remove the three bolts securing the outer ring to the other rings. Refer to Figures 19 and 20. It is not necessary to remove the outer cylinder or any of the air lines connected to it. Carefully set aside the outer ring.

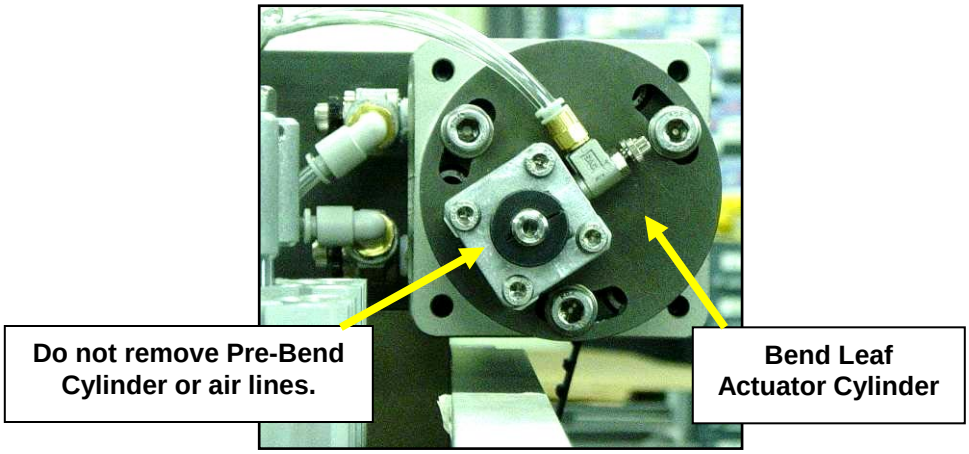


Figure 19. BEND LEAF ACTUATOR CYLINDER WITH PRE-BEND CYLINDER.

CHANGING THE BEND HEAD ANGLES (continued)

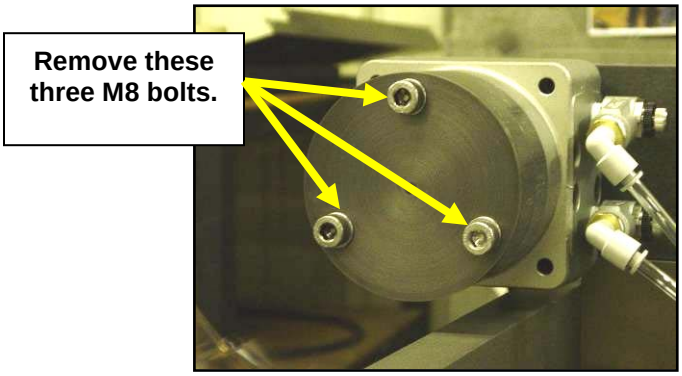


Figure 20. BEND LEAF ACTUATOR CYLINDER WITHOUT PRE-BEND CYLINDER.

5. Once the outer ring is removed, 6 bolts are exposed securing the inner rings. Refer to Figure 21. Loosen but do not remove the inner bolts.

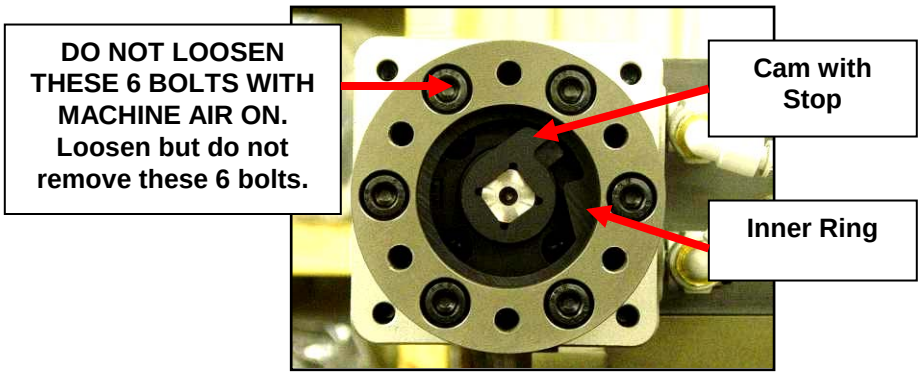


Figure 21. SIX INNER BOLTS.

6. To make the bend angle adjustment, place a protractor across the face of the bend leaf. Refer to Figures 22 and 23. Manually move the bend leaf until the desired angle is reached. To accommodate for plate spring back, add approximately 7 degrees (7^{o}) to the bend head setting. Move the inner ring until it is in contact with the cylinder stop dog. Tighten the bolts loosened in step 5.

NOTE

Plate spring back is due to plate thickness and other factors. Actual allowance from 7^{o} may vary.

CHANGING THE BEND HEAD ANGLES (continued)

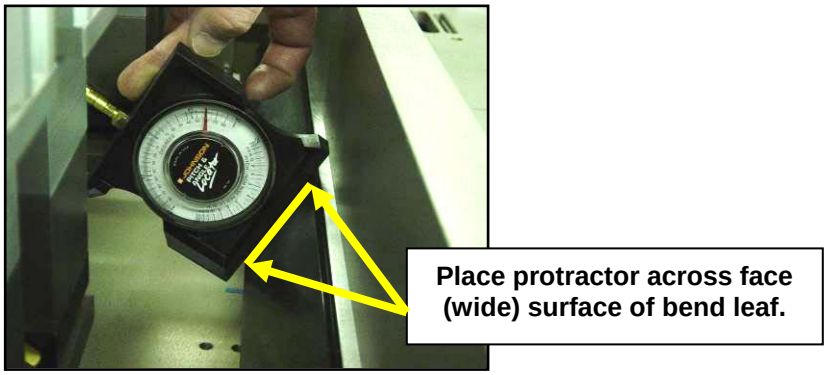


Figure 22. PLACING THE PROTRACTOR ACROSS THE FACE OF THE LEFT SIDE BEND LEAF.

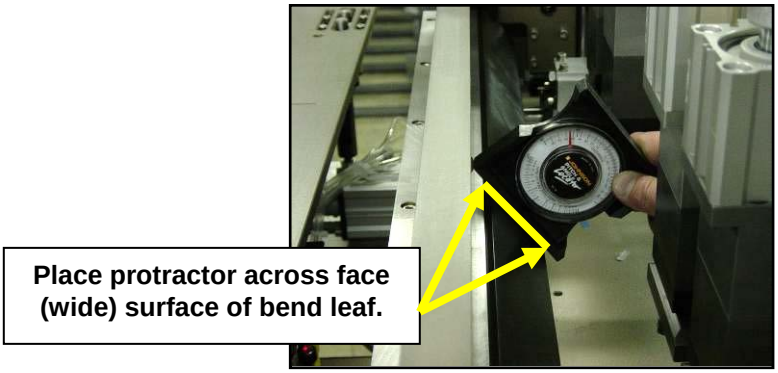


Figure 23. PLACING THE PROTRACTOR ACROSS THE FACE OF THE RIGHT SIDE BEND LEAF.

7. Bend a test plate to assess and verify desired result. As needed, repeat step 6 above until the primary bend angle is as desired.

SETTING THE SECONDARY (PRE-BEND) BEND ANGLE (This section is optional, depending whether there is a pre-bend or not.)

Perform this procedure on the right and left side bend leaves, as appropriate, to meet the Plate Print requirements.

8. To adjust the angle of the secondary bend (or pre-bend), re-install the outer ring (removed in step 4 above) with the cylinder and air lines still attached to it back onto the middle ring. Do not fully tighten the three mounting bolts yet.

CHANGING THE BEND HEAD ANGLES (continued)

9. Again, take a protractor but this time; place it across the top of the bend leaf. Refer to Figures 24 and 25. Using the appropriate valve, extend the pre-bend stop cylinder, then manually move the bend leaf until desired position is achieved. As before, add approximately 7 degrees (7^{o}) to accommodate for plate spring back.

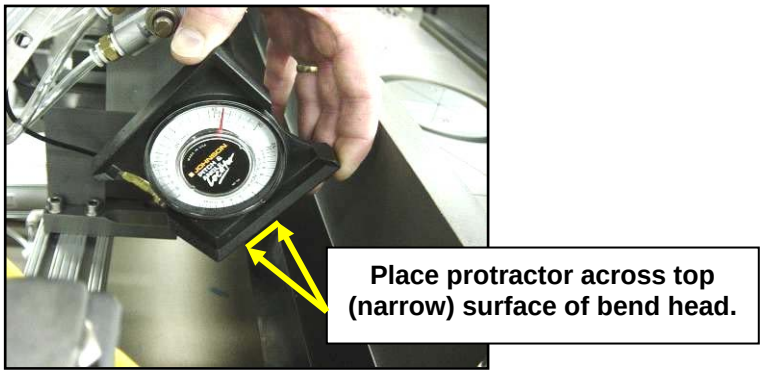


Figure 24. PLACING THE PROTRACTOR ACROSS THE TOP OF THE LEFT SIDE BEND LEAF.

10. Once the desired bend head angle is achieved, fully tighten the three mounting bolts on the outer ring to secure the components in place. In this way, the stop pin inside the outer cylinder catches the stop dog to establish the pre-bend angle during production.

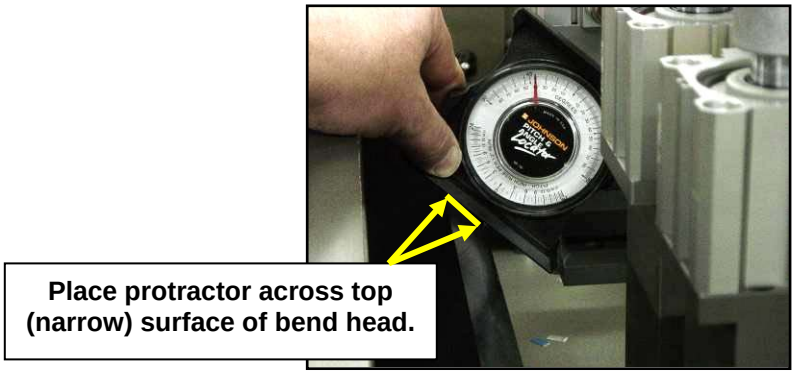


Figure 25. PLACING THE PROTRACTOR ACROSS THE TOP OF THE RIGHT SIDE BEND LEAF.

CHANGING THE BEND HEAD ANGLES (continued)

11. As with all adjustment procedures, bend a test plate to verify desired results. As needed, repeat steps 7 through 9 above to make additional angle adjustments. Make sure to add approximately 7^{o} to the protractor reading to accommodate plate spring back.

ORDERING SPARE PARTS AND KITS

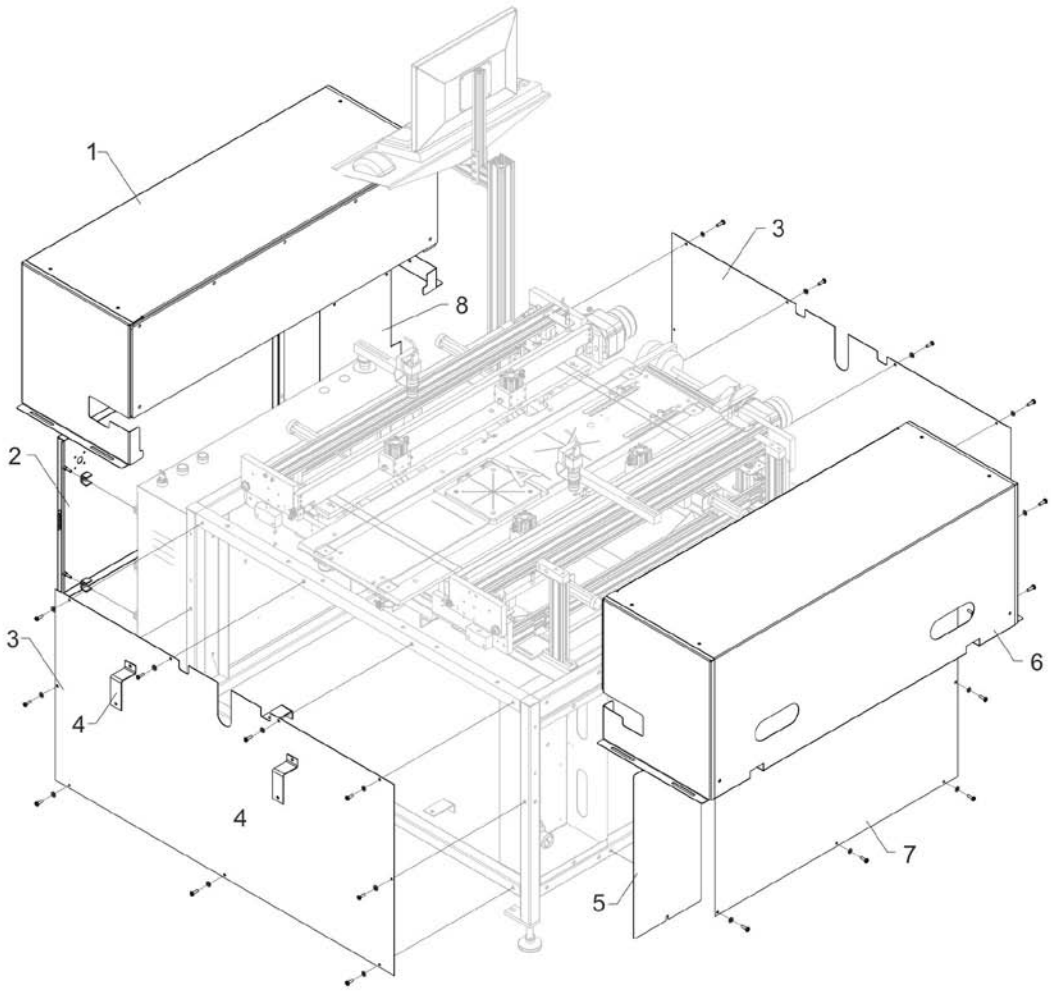
Glunz & Jensen Customer Service can be contacted directly at (574) 272-9950, or by FAX at (574) 277-6566. We appreciate your business and your continued interest in our products.

RECOMMENDED SPARE PARTS AND KITS

The list below is representative of the kinds of components that may require servicing or replacement. For a complete listing of all machine components, refer to the Parts List with this Manual. To order these or any replacement parts, refer to Ordering Spare Parts and Kits in this Manual.

PART NUMBER	DESCRIPTION	QUANTITY
Electrical Components		
ER0006	Relay 4 N.O.	1
ER0050	Relay	1
ER0051	Relay	1
0066940GR003	24 VDC Gear Motor	1
ES0111	Photoswitch Sensor	1
EF0001	Fuse, 0.5 Amp	3
EF0005	Fuse, 1 Amp	2
EF0006	Fuse, 2 Amp	2
EF0010	Fuse, 3.15 Amp	1
EF0008	Fuse, 5 Amp	1
ES0007	Proximity Switch	1
Pneumatic Components		
PF0027	Flow Control	2
PF0031	Flow Control	2
PF0034	Flow Control	2
PA0067	Vacuum Ejector	1
PA0068	Filter	1
PV0200	Solenoid	1
PV0024	Solenoid Dump	1
PV0049	Solenoid	1

Exploded Views /Spare Parts



T8934

PANELS

Panels

Position	Part No	Specification
1	0035652GR001	ASSY – RIGHT HOOD
2	0066296GR002	ELECTRICAL BOX
3	0035186GR004-6	PANEL, SIDE
4	0035223-005	BRACKET – FRONT BOX
5	0035654-001	COVER - PNEUMATICS
6	0035652GR002	ASSY – LEFT HOOD
7	0035186GR004-8	PANEL, BACK
8	0035186GR004-7	PANEL, FRONT
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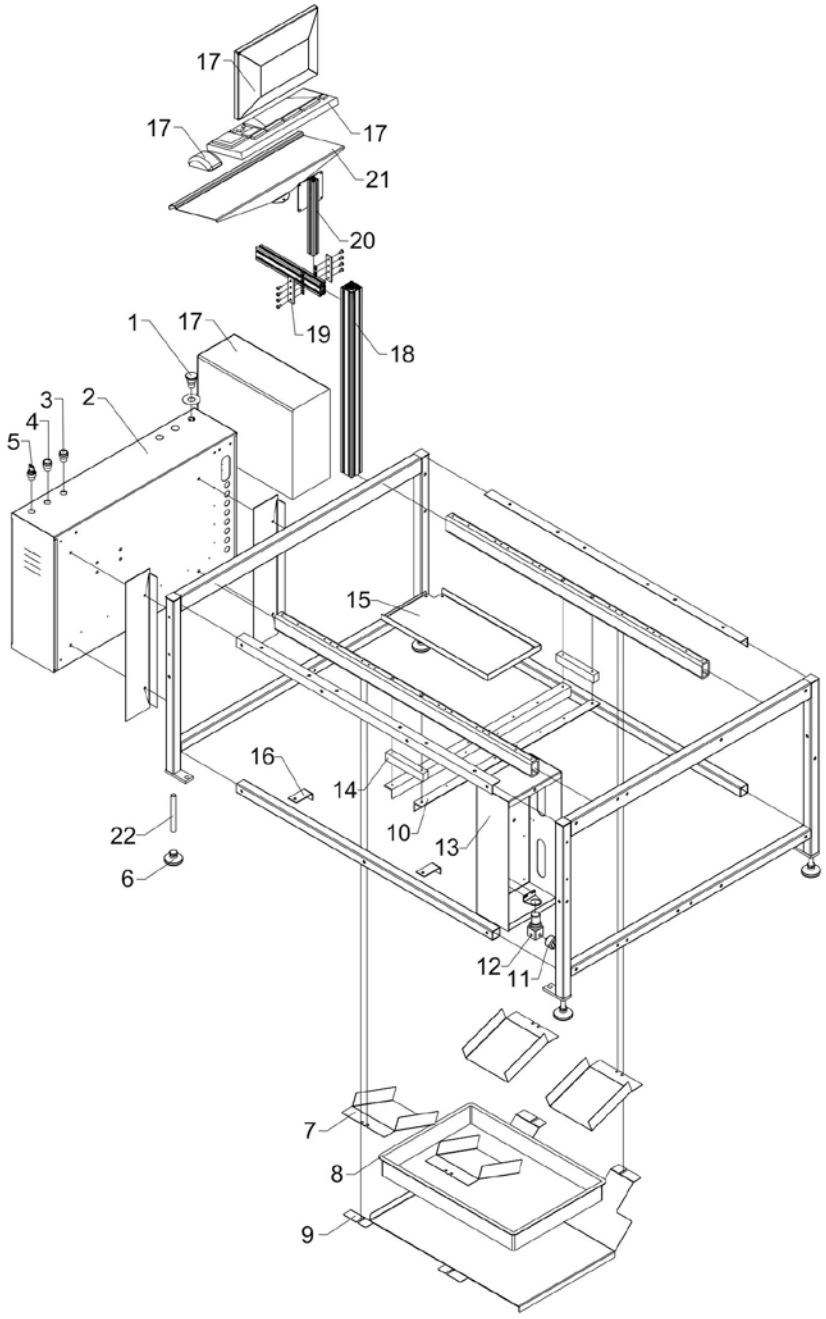

STAND

Stand

Position	Part No	Specification
1	EA0223	BUTTON, EMERGENCY STOP
2	0066296GR006	ELECTRICAL BOX- ALTERED
3	EA0222	BUTTON, CLEAR COLOR
4	EA0257	BUTTON, GREEN COLOR
5	EA0250	SWITCH, KEY
6	MX1070	FOOT, MOUNTING
7	0035655-004	RAMP, SLUG (SCRAP)
8	MX1076	BIN, SLUG (SCRAP)
9	0035656-001	BRACKET – SLUG BIN
10	0035611-008	BRACKET – YJX ANGLE
11	PP0006	GAUGE, PRESSURE, AIR
12	PP0042	BRACKET - FILTER/REGULATOR, AIR
13	0035645-004	PANEL - PNEUMATIC
14	0035611-009	BLOCK, SPACER
15	0035610-003	TRAY, COMPUTER
16	0035223-006	BRACKET – FRONT BOX
17	EH0045	COMPUTER/MOUSE/KEYBOARD/MONITOR
18	0035608-001	POST – MONITOR/BEACON
19	RAX071	EXTRUSION with M6 TAP ENDS
20	RAX070	EXTRUSION
21	0035610_001	TRAY, KEYBOARD
22	0061052-065	ROD, THREADED
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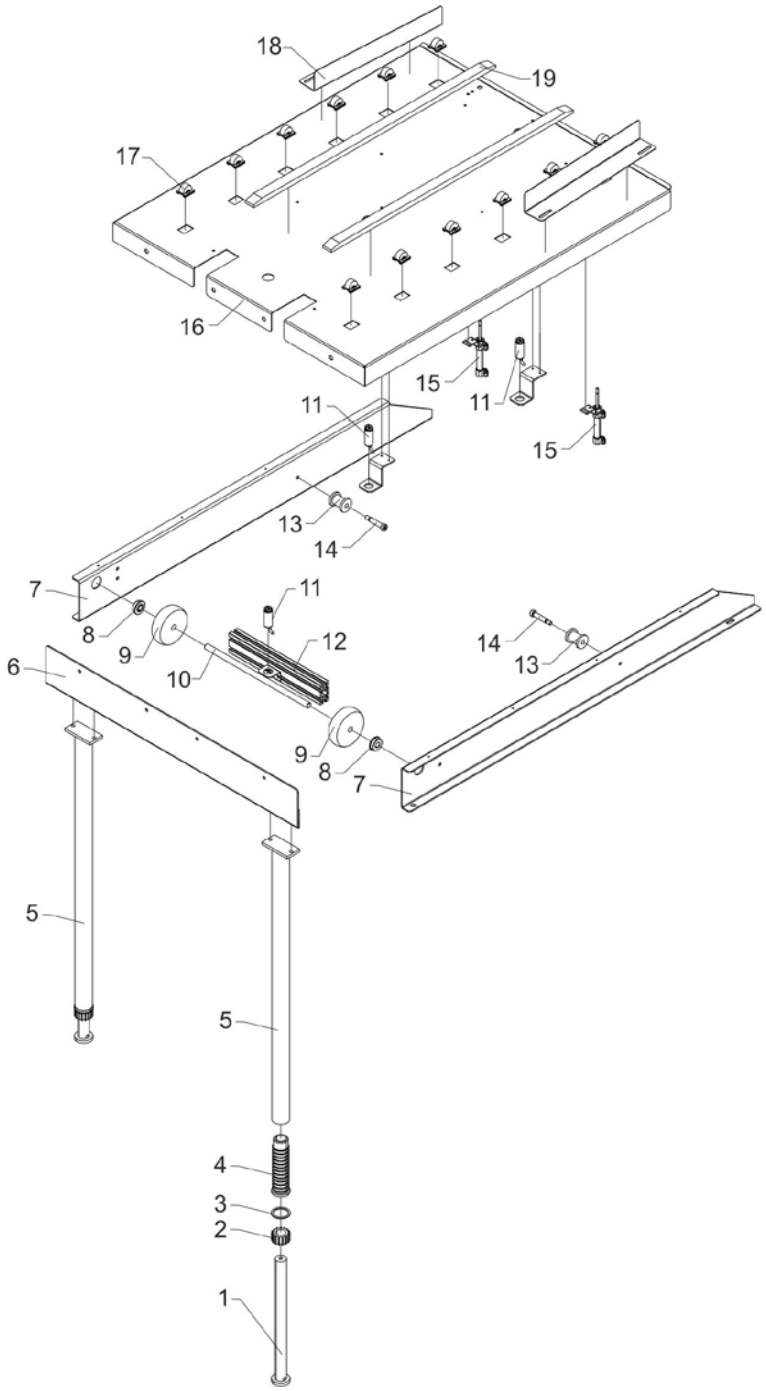

ENTRY CONVEYOR

Entry Conveyor

Position	Part No	Specification
1	MX1046	LEG
2	MX1045	NUT
3	MX1044	GASKET
4	MX1047	BUSHING
5	0035665GR001	ASSY, LEG
6	0035671-001	BRACKET, ANGLE-MOUNT
7	0035657-001	PLATE, SIDE
8	MB0057	FLANGE_BEARING
9	0065939-001	WHEEL, BELT DRIVE
10	0066145-017	SHAFT, CONVEYOR
11	ES0099	SENSOR, PHOTOELECTRIC
	ES0004	SENSOR, PHOTOELECTRIC
12	RAX087	EXTRUSION
13	0069035-002	WHEEL, IDLER
14	MF1536	BOLT, SHOULDER
15	0066944GR001	ASSY – STOP CYLINDER
16	0035661-001	TOP PLATE – ENTRY CONVEYOR
17	MX1007	WHEEL, ROLLER (WHITE)
18	0062564-039	GUIDE, PLATE
19	0065926-042	PLATE, BELT SUPPORT
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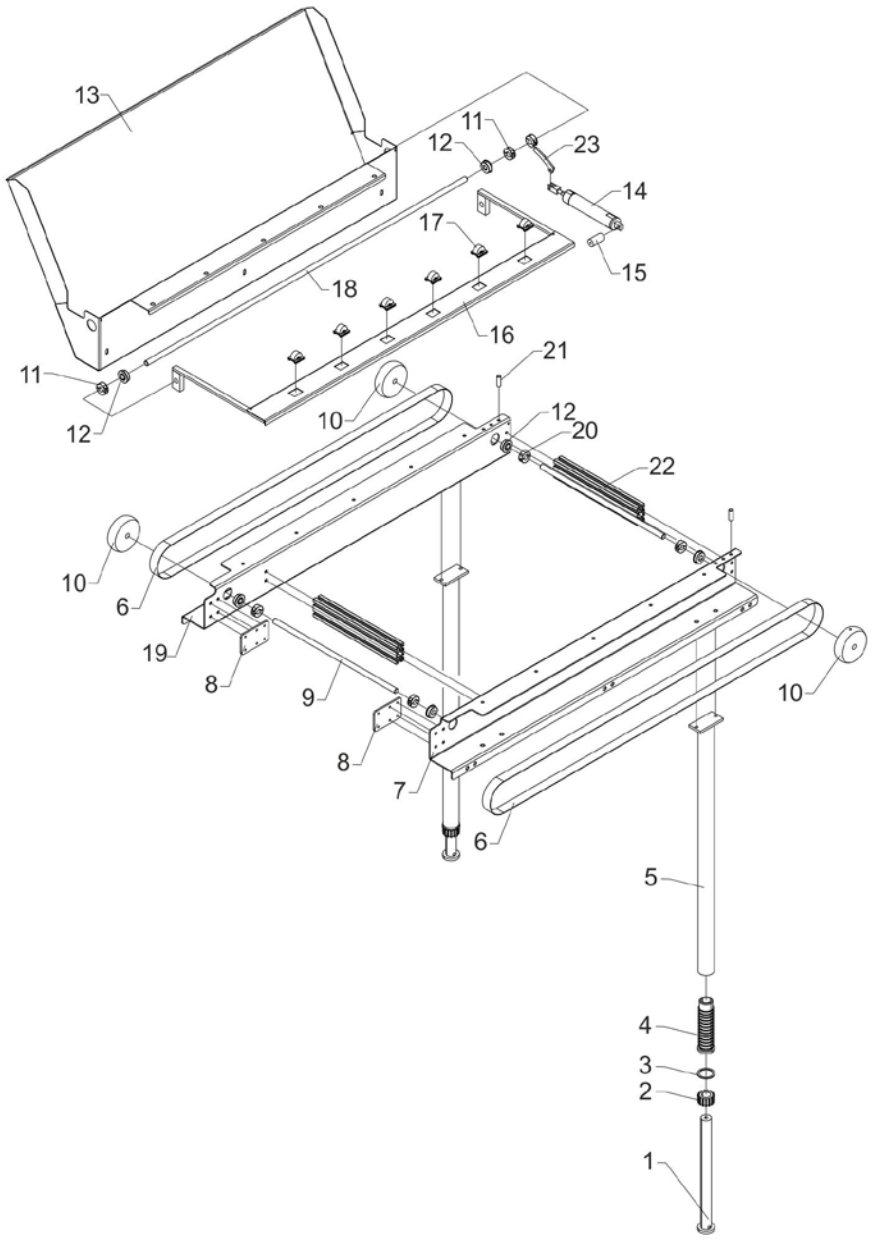

T8937

STACKER

Stacker

Position	Part No	Specification
1	MX1046	LEG
2	MX1045	NUT
3	MX1044	GASKET
4	MX1047	BUSHING
5	0035665GR001	ASSY, LEG
6	MD0168	BELT, FLAT
7	0035657-005	SIDE PLATE - STACKER
8	0066320-009	CONNECTOR PLATE
9	0066145-019	SHAFT, CONVEYOR
10	0065939-001	WHEEL, BELT DRIVE
11	MX0063	COLLAR, SPLIT
12	MB0057	BEARING
13	0035666-001	BASKET
14	PC0646	CYLINDER
15	0066695-001	BOSS (SPACER)
16	0035667GR001	ARM, STACKER
17	MX1007	WHEEL, ROLLER (WHITE)
18	0066145-018	SHAFT, CONVEYOR
19	0035657-006	SIDE PLATE – STACKER
20	MX0087	COLLAR
21	0035204-010	STOP PIN
22	RAX087	EXTRUSION
23	0066165GR002	BRACKET - ARM, ACTUATOR
24		
25		
26		
27		
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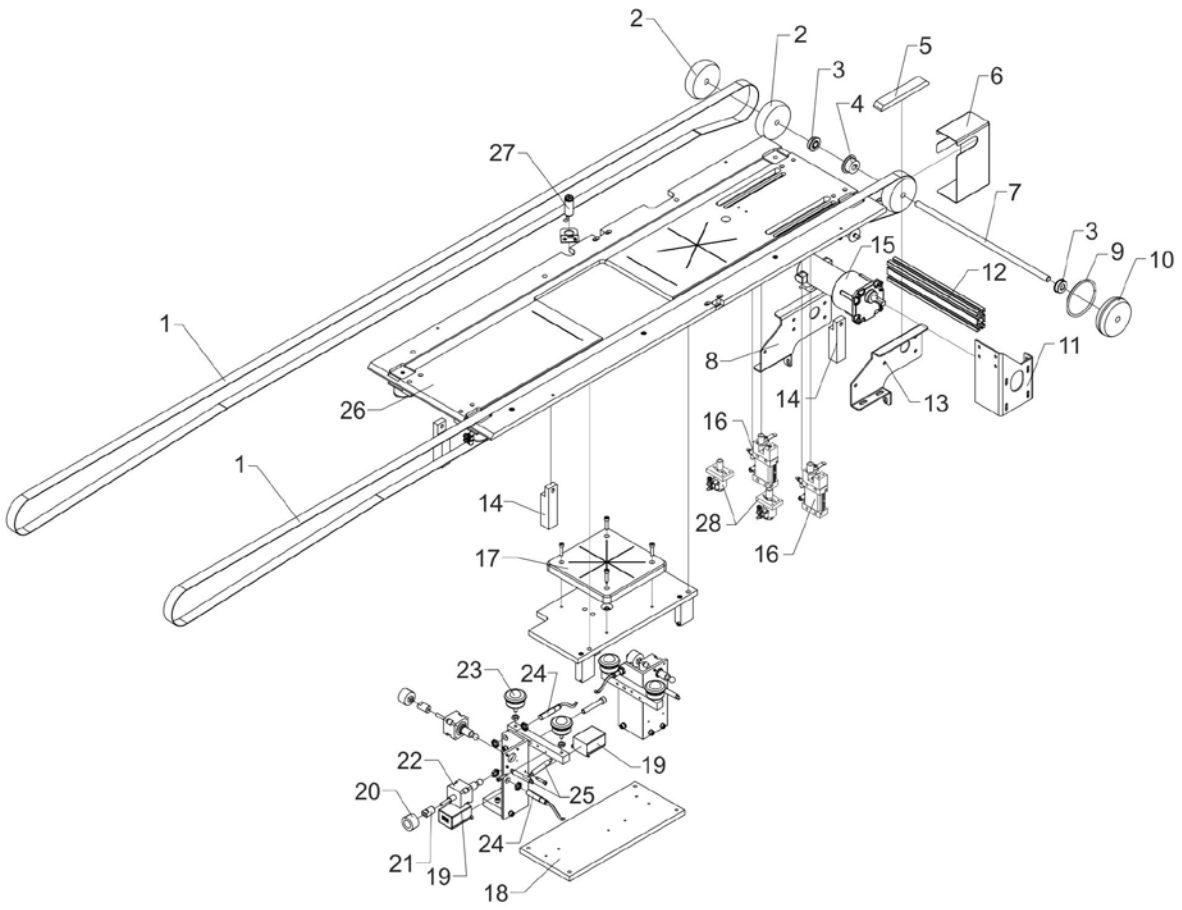
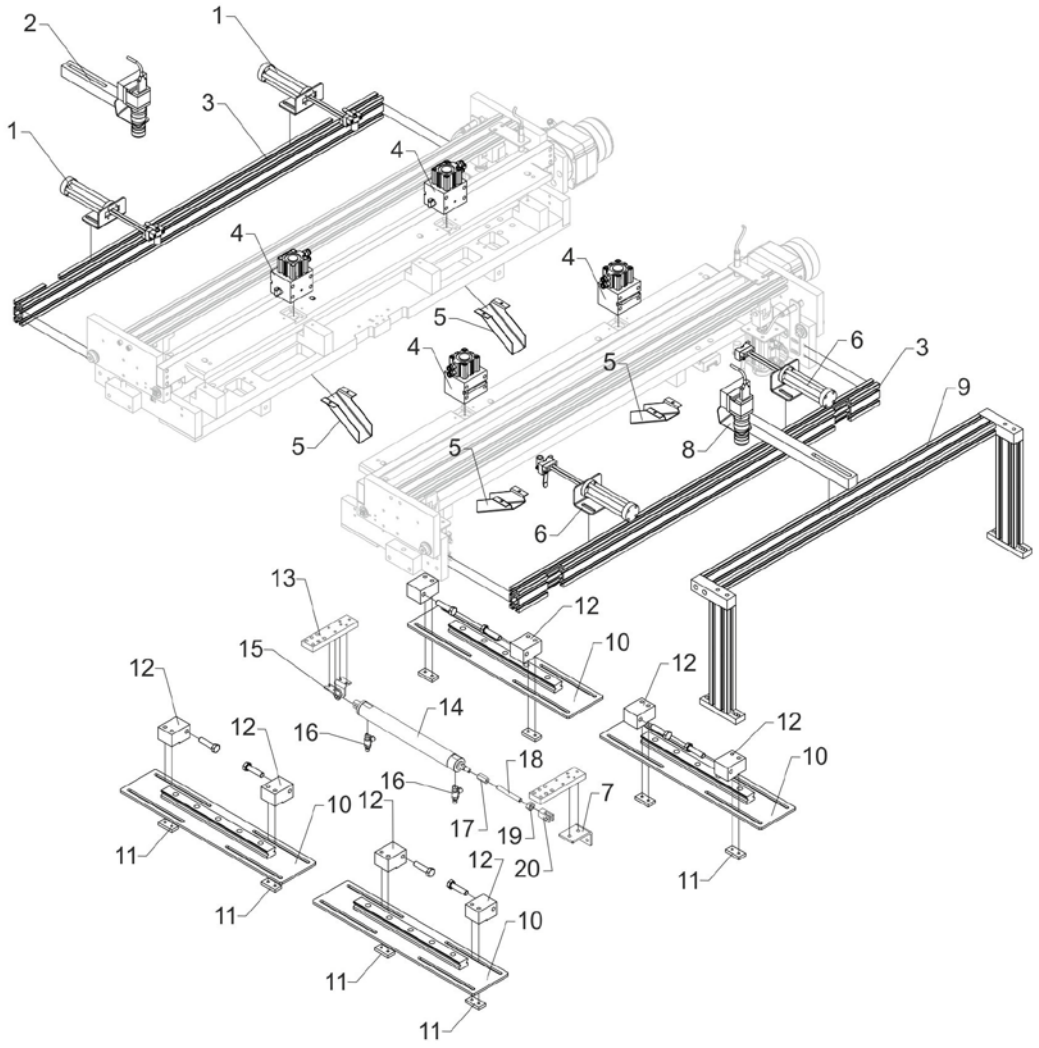


T8938

VACUUM PLATE AND REGISTER TABLE

Vacuum Plate and Register Table

Position	Part No	Specification
1	MD0168	BELT, FLAT
2	0065939-001	WHEEL, BELT DRIVE
3	MB0057	FLANGE_BEARING
4	MD0172	SPROCKET
5	0035694-001	PLATE SUPPORT
6	0035664-001	GUARD, CHAIN
7	0066145-016	SHAFT, CONVEYOR
8	0035657-004	SIDE PLATE - CONVEYOR
9	MX0746	O-RING
10	0065939-004	WHEEL, BELT DRIVE (O-RING)
11	0035662-001	MOTOR MOUNT
12	RAX087	EXTRUSION
13	0035657-003	SIDE PLATE - CONVEYOR
14	0035649-001	SUPPORT BAR
15	EM0120	MOTOR
16	3500013GR063	ASSY, STOP
17	0035430GR009	ASSY, YJX VACUUM TABLE
18	0035564-004	BASE PLATE, YJX
19	ED0032	DRIVE, STEPPER
20	0035434-002	KNOB, SENSOR FLAG
21	0035434-003	NUT, LOCK
22	ED0031	MOTOR, STEPPER
23	MB0574	TRANSFER BALL
	MB0575	TRANSFER BALL
24	ES0007	SENSOR, PROXIMITY
25	MS0315	EXTENSION SPRING
	MS0316	EXTENSION SPRING
26	0035660GR001	ASSY, VACUUM PLATE
27	ES0099	SENSOR, PHOTOELECTRIC
	ES0004	SENSOR, PHOTOELECTRIC
28	3500013GR061	ASSY, STOP



T8939

BEND HEAD

Bend Head

Position	Part No	Specification
1	3003575GR024	ASSY, END STOP
2	0035024GR005	ASSY, CAMERA BRACKET
3	0035684-001	EXTRUSION - ALTER
4	0035423GR021	ASSY, PUNCH HEAD
5	0035655-001	CHUTE, SLUG (SCRAP)
6	3003579GR030	ASSY, END PUSHER
7	0035043-006	BRACKET, CYLINDER
8	0035024GR006	ASSY, CAMERA BRACKET
9	0035068GR011	ASSY, CAMERA MOUNT
10	0035613-001	PLATE, STOP MOUNT
11	0035027-006	NUT PLATE
12	0035614-004	STOP BLOCK
13	0035681-001	PLATE, ADAPTER (CYLINDER)
14	PC0693	CYLINDER
15	PA0056	CLEVIS, CYLINDER
16	PF0029	FLOW CONTROL
17	MF1723	COUPLING NUT
18	0035648-001	ROD, THREADED
19	MF1709	NUT, 5/16-24UNF
20	MX0795	CLEVIS, CYLINDER
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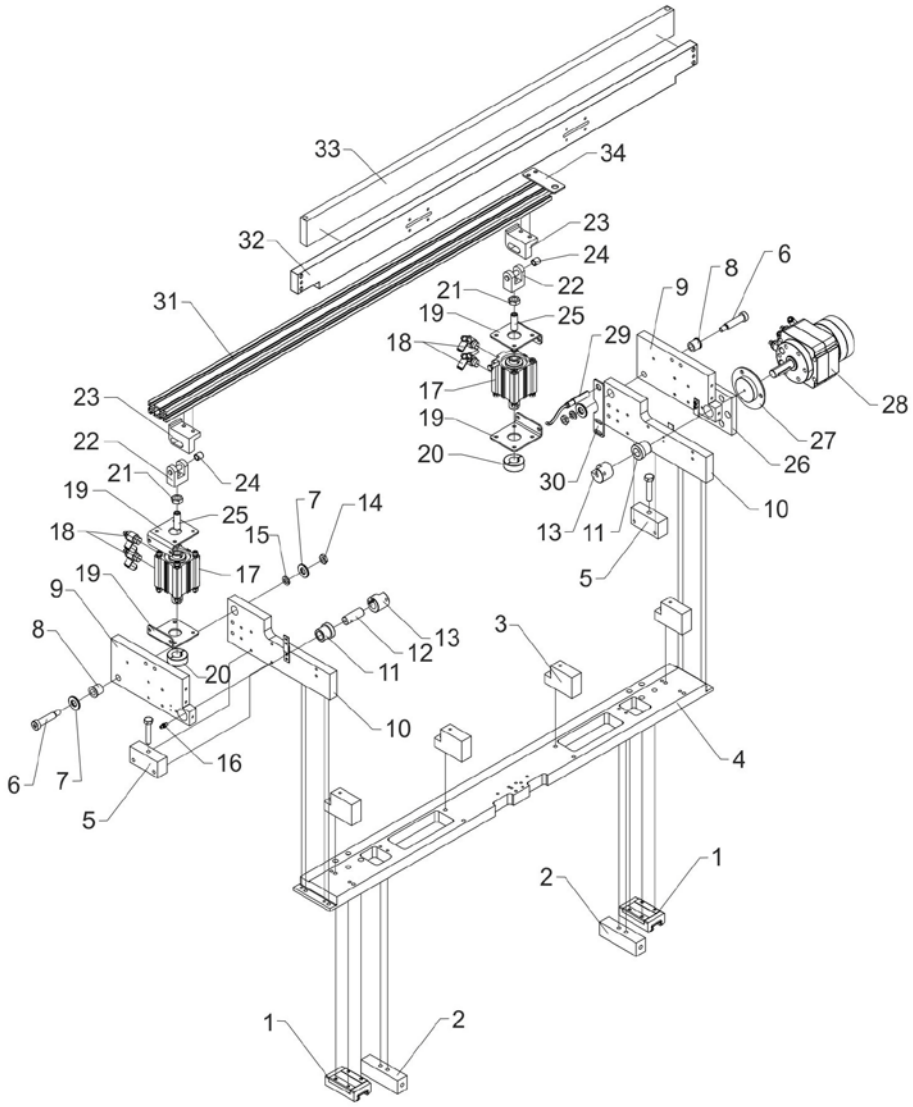
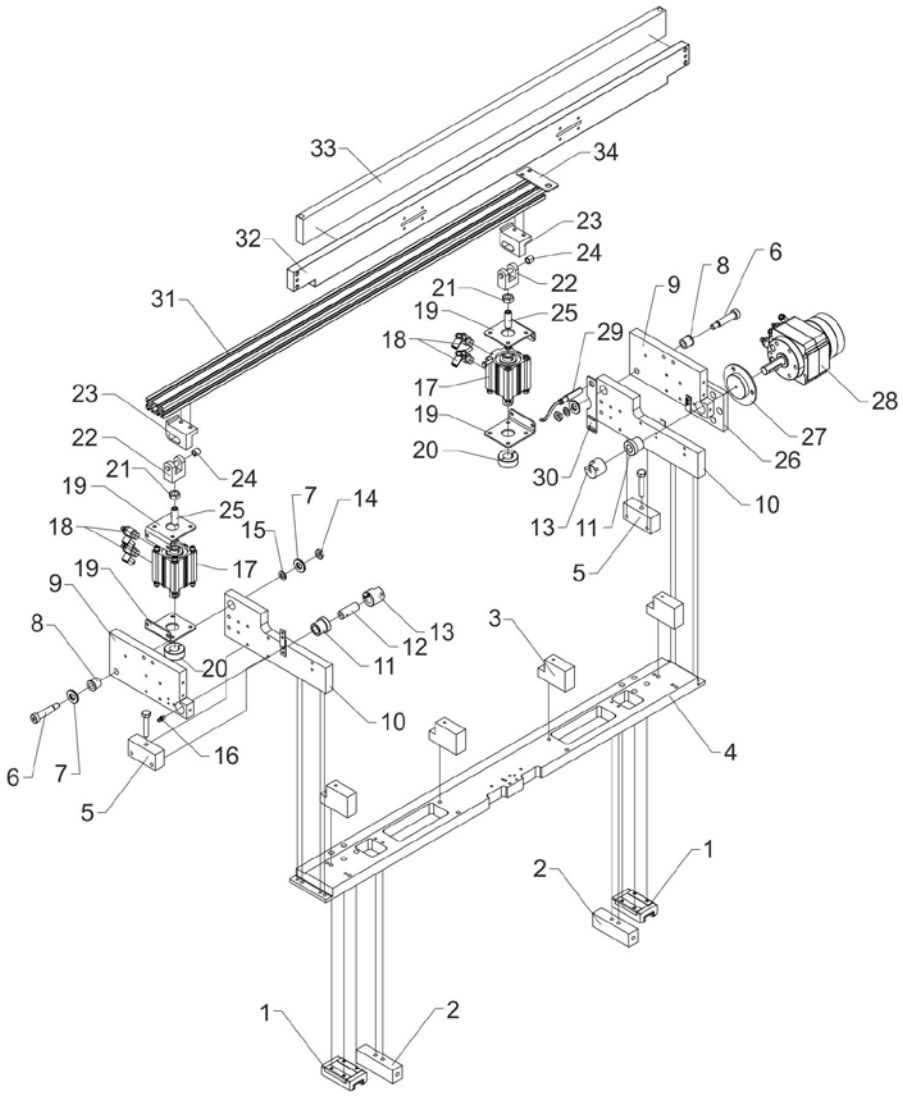


T8940

LEFT BEND HEAD

Left Bend Head

Position	Part No	Specification
1	MB0545	BEARING, LINEAR
2	0035614-009	STOP BLOCK
3	0035638-001	BLOCK, MANDREL MOUNT
4	0035639-001	BASE, MANDREL MOUNT
5	0035686-001	STOP BLOCK
6	SHSB	BOLT, SHOULDER
7	MF1181	WASHER, FLAT
8	MB0244	BUSHING
9	0035632-001	PIVOT PLATE
10	0035635-001	PIVOT BASE
11	MB0577	BUSHING
12	0035643-001	SHAFT, PIVOT
13	0035636-001	PIVOT, BEND LEAF
14	MF0338	NUT
15	MF1151	WASHER, LOCK
16	MX0103	ZERK, GREASE
17	PC0647	CYLINDER
18	PF0033	FLOW CONTROL
19	0035647-003	BRACKET, CYLINDER
20	MC0023	COLLAR, STOP
21	MF1513	NUT
22	0035829-001	REF. MX1075 CLEVIS, ROD
23	0035646-001	BLOCK, CLEVIS
24	MB0111	BUSHING, BRONZE
25	MF0544	SET SCREW
26	0035644-001	MOUNT, CYLINDER
27	0035153-002	STOP CAP
28	0035461GR016	ASSY, BEND LEAF ACTUATOR
29	ES0007	SENSOR, PROXIMITY
30	0035036-027	BRACKET, SENSOR



T8940

LEFT BEND HEAD

Left Bend Head

Position	Part No	Specification
31	RAX063	EXTRUSION
32	0035629-000	BAR – HOLD DOWN
33	0035637-001	BEND LEAF
34	0035036-026	BRACKET, SENSOR
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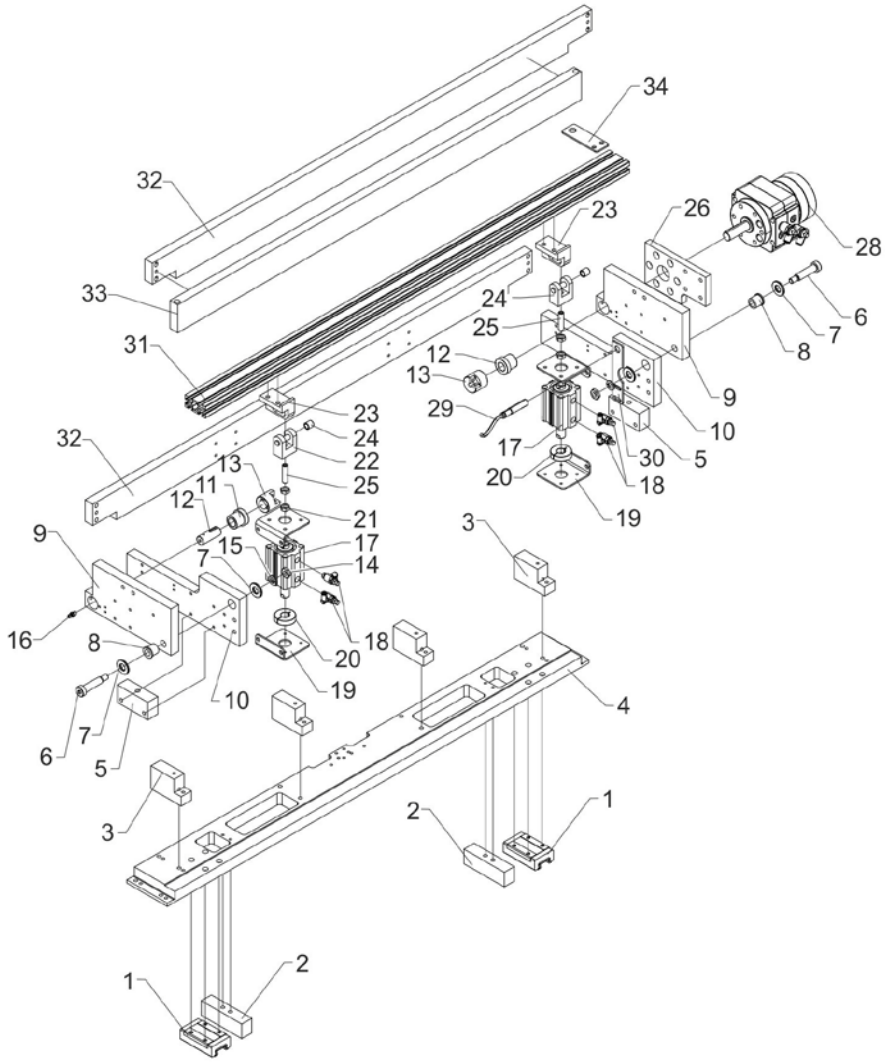
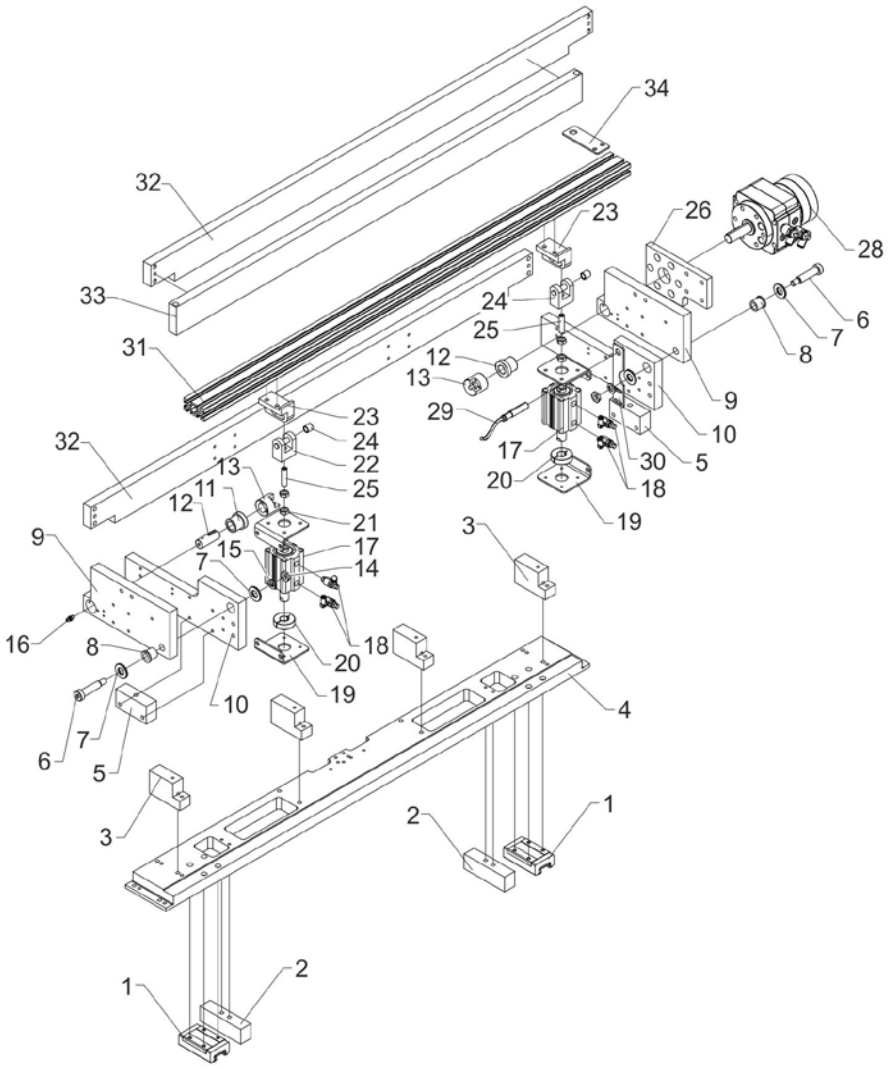


T8941

RIGHT BEND HEAD

Right Bend Head

Position	Part No	Specification
1	MB0545	BEARING, LINEAR
2	0035614-009	STOP BLOCK
3	0035638-001	BLOCK, MANDREL MOUNT
4	0035639-001	BASE, MANDREL MOUNT
5	0035686-001	STOP BLOCK
6	SHSB	BOLT, SHOULDER
7	MF1181	WASHER, FLAT
8	MB0244	BUSHING
9	0035632-001	PIVOT PLATE
10	0035635-001	PIVOT BASE
11	MB0577	BUSHING
12	0035643-001	SHAFT, PIVOT
13	0035636-001	PIVOT, BEND LEAF
14	MF0338	NUT
15	MF1151	WASHER, LOCK
16	MX0103	ZERK, GREASE
17	PC0677	CYLINDER
18	PF0029	FLOW CONTROL
	PF0033	FLOW CONTROL
19	0035647-002	BRACKET, CYLINDER
20	MC0023	COLLAR, STOP
21	MF1640	NUT
22	MX1075	CLEVIS, ROD
23	0035646-001	BLOCK, CLEVIS
24	MB0111	BUSHING, BRONZE
25	3/8-24 UNFX1.5	SET SCREW
26	0035644-002	MOUNT, CYLINDER
27	0035153-002	STOP CAP
28	0035461GR016	ASSY, BEND LEAF ACTUATOR
29	ES0007	SENSOR, PROXIMITY



RIGHT BEND HEAD

Right Bend Head

Position	Part No	Specification
30	0035036-027	BRACKET, SENSOR
31	RAX063	EXTRUSION
32	0035629-000	BAR – HOLD DOWN
33	0035637-001	BEND LEAF
34	0035036-026	BRACKET, SENSOR
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